THE WORKING PEOPLE

THEIR HEALTH AND HOW TO PROTECT IT

M. G. OVERLOCK M.D.

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The Working People

Their Health and How to Protect It

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TO

THE MEMORY OF MY PRECEPTOR

J. BARTLETT RICH, M.D.

WHO FOR NEARLY TWENTY-FIVE YEARS SUSTAINED

THE HIGH IDEAS

OF THE GENERAL PRACTITIONER

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INTRODUCTION

THIS is a plain book written in a plain way by a plain man for plain people. By this we do not necessarily adopt the politician's definition of the plain people. We refer to that great mass of men and women who make up the bone and sinew of this nation—the toilers—whose health is their principal asset, and who, when they are stricken down by disease, see ahead of them nothing but a long, straight road that leads directly through the poor-house into an open grave.

The rich can afford to be sick. It is merely an incident in their well-sheltered lives. Their income does not diminish when they fall sick. Indeed, through a fortunate rise in stocks, it may actually be greater when they are sick than when they are well. With the poor man—not the pauper, but the great middle class workman dependent on his labor for his daily bread—the situation is far different. The instant he falls sick his income stops, and if he has a family dependent upon him, God help him —and them. It is, therefore, absolutely necessary that the working people of this country, men and women alike, should preserve their health as if it were so much gold. The rich man stores his capi-

tal in great steel vaults in massive banks surrounded by every safeguard that human ingenuity can suggest. The poor man's health is his capital, and he squanders it as if it were the leaves upon the trees and he were the owner of vast forests.

We have devoted much space in this volume to tuberculosis—consumption, as it is popularly known—but we have not lost sight of other diseases to which the American workman is particularly susceptible.

We have endeavored to clothe what we had to say in language that a child could understand, and we can assert freely that if every reader of this book will follow our advice, he will add many, many years to his life.

We have heard a good deal in this country in the last five years of the Osler theory. The best refutation that we know of the Osler theory is Dr. Osler himself. At sixty years of age he is one of the most efficient, luminous minded and irreplaceable men on the globe. He is more efficient than he was at fifty; he is far more efficient than he was at forty.

Horace Greeley once declared: "They say to you a man's a man when he's twenty-one. I say to you a man isn't a man until he's thirty-eight." If any man or woman confronting middle life is reading these words, I want to say to you that your best years are just before you. At forty you should look forward to thirty years of increasingly active usefulness. The great compelling force that has moulded your whole life has been the knowledge that you will be poor if you do not exert yourself. From this time forth your great concern should be

not to accumulate riches, but to accumulate health, for *health, if you are poor, is your capital.*

I have endeavored in this book to show you how to keep your capital—health—unimpaired, and if it is impaired how to regain it, for it is still as true as when it was originally written that "it is said the greatest thing in the world is *to be* healthy," but I say no, it is a far greater thing to *become* healthy.

Finally, to the sick and to the well, to the rich and the poor everywhere, I want to preach the doctrine of courage. I have endeavored to outline in this book some of the modern methods that are being undertaken to combat tuberculosis and to extend the sway of preventive medicine, and I want to say to every reader of this book that we are standing today at the very dawn of a new era of humanitarianism. Every effort that science and wealth can put forth to enable man to live on a higher plane, and to live on that plane longer, is being done. Old age is being pushed farther and farther into the background. Man's wage-earning utility at fifty, sixty and seventy years of age is not a dream or a possibility, but is practically an accomplished fact. Inside of twenty-five years our civilization with its constantly ameliorating conditions for the laborer will have conquered tuberculosis and every other disease which is the product of over-work, impure air, lack of nourishment, and our great American curse—worry for fear of dying poor.

If what I have written, after years of practical experience in labor and industrial problems and after coming to hand-grips with the great white

plague itself, shall help some soul out of the darkness of disease and despair into the sunlight of health and happiness, then the prime object for which this work was undertaken will have been accomplished.

MELVIN G. OVERLOCK, M.D.

Worcester, Mass., May 2, 1909.

CHAPTER I

What Prevents an Absolutely Healthy Person from Contracting Consumption

Col. Robert G. Ingersoll used to say if he had created humanity, he would have made health catching rather than disease. If you will follow my advice in these pages you will not have to catch health—it will stay right with you.

Take consumption, for example; we now know that it is caused by a small germ called the bacillus, a word taken from the Greek and so called because under the microscope it has the appearance of the walking-stick. These germs are everywhere present in varying quantities, but they love darkness, dampness and foul air. If your occupation compels you to put up with any or all of these three menaces to health, your obligation to keep the factor of safety—your bodily health—at the highest point is imperative.

You must eat wholesome, nourishing food, sleep with your windows open, brush your teeth before and after each meal and on rising and retiring. If you would avoid consumption you must keep the tubercle germs out of your system. But should they gain lodgment do not despair. Man is so fearfully and wonderfully made that the blood

itself fights with ferocious energy to expel the invader. The white corpuscles of the blood are literally warriors standing at the very gateway of the system to repel and expel disease of all types. But you must help the white corpuscle fight his battle if he is to win. You cannot starve him with poor food, you must not stifle him with impure air, you cannot suffocate him with the poisons of a germ-laden mouth and unclean teeth.

It is unnecessary for me perhaps to say to you that spitting is one of the most potent causes of the spread of tuberculosis. If a case of advanced consumption is taken care of in the proper manner, that means that the sputum and the feces and the urine should be destroyed or burned, that a spit-cup be always used, and that if it is in the country the proper amount of disinfectants should be placed in the stools, and here again chloride of lime is one of the cheapest and best. If the room in which the patient is confined receives plenty of light and air, and if proper attention is paid to the general cleanliness surrounding the patient, he need not be feared as a source of infection. People to-day have heard so much about tuberculosis and how it can be communicated from one person to another, they have begun to have a sort of insane fear of the patient suffering from consumption. A number of cases have come to my notice during the last two or three years where a patient has been deserted by all his former associates, because they were afraid they were going to contract consumption if they made him a visit or went near him. This fear is unfounded and nonsensical.

In the old Brompton Hospital in London, England, the oldest of its kind in the world for the care of tuberculosis, the hospital records show that within the last ninety years only two nurses have contracted tuberculosis in the institution, although it cares mainly for advanced cases. This means that the utmost care was exercised in the avoidance of those things I have already mentioned.

Therefore, in conclusion, I again say that consumption is a disease of filth, carelessness, willful neglect and intemperance, all of them factors contributing to a low condition in the general health and making any person susceptible whenever these conditions are present. On the other hand, a person who is in perfect health, who pays attention to proper breathing exercises, proper diet and bathing and who avoids that one great factor—getting overtired—need have no fear of tuberculosis.

CHAPTER II

Importance of Early Recognition of Consumption Among the Working Class

Ninety per cent. of all who have consumption belong to the working classes. The following table, compiled by the Prudential Life Insurance Company, shows the cause of death during the following periods among their policy-holders:—

NUMBER OF DEATHS FROM CONSUMPTION BY DIVISIONAL PERIODS, PRUDENTIAL LIFE, 1897 to 1906

Occupations exposing to metallic dust.	Ages at Death.						
	15 & over.	15-24.	25-34.	35-44.	45-54.	55-64	65 & over.
Grinders,	63	4	17	24	12	5	1
Polishers,	108	22	42	29	11	4	0
Brass workers,	161	39	56	41	14	11	0
Tool and instrument workers,	101	13	35	24	21	4	4
Jewelers,	113	24	44	22	13	7	3
Engravers,	67	12	29	19	5	2	0
Printers,	613	167	247	140	42	13	4
Compositors,	59	6	36	12	3	1	1
Totals,	1285	287	506	311	121	47	13
Occupations exposing to mineral dust.							
Stone workers,	302	10	60	82	91	52	7
Marble cutters,	56	0	15	16	16	7	2
Glass blowers,	85	11	44	15	11	1	3
Glass cutters,	40	7	14	11	5	1	2
Potters,	127	11	36	37	22	14	7
Platerers,	136	7	35	38	35	16	5
Totals,	746	46	204	199	180	91	26

Occupations exposing to vegetable fibre dust.	Ages at Death. 15 & over.	15-24.	25-34.	35-44.	45-54.	55-64.	65 & over.
Spinners,	56	13	19	16	7	1	0
Weavers,	254	43	93	59	37	15	7
Totals,	310	56	112	75	44	16	7
Occupations exposing to animal and mixed fibre dust.							
Furriers and taxidermists,	34	1	7	19	4	2	1
Hatters,	278	42	97	84	34	20	1
Wool and worsted workers,	26	7	7	5	4	3	0
Carpet and rug makers,	37	9	10	6	5	4	3
Silk mill workers,	106	28	32	33	7	4	2
Upholsterers,	118	15	38	38	18	3	6
Totals,	599	102	191	185	72	36	13
Occupations exposing to general organic dust.							
Millers,	40	2	7	8	11	9	3
Bakers,	277	43	86	75	43	23	7
Button makers,	48	12	16	12	6	1	1
Leather workers,	206	35	77	55	29	9	1
Totals,	571	92	186	150	89	42	12
Occupations exposing to municipal or street dust.							
Street cleaners,	32	0	8	12	7	3	2
Cabmen and hackmen,	165	18	58	53	24	11	1
Letter carriers,	59	4	23	24	3	4	1
Street car motormen,	121	13	66	27	9	6	0
Totals,	377	35	155	116	43	24	4

It will be noticed that the death rate is highest during the best years of life. Not more than one per cent. receive proper aid at the right time, and at least seventy per cent. die unnecessarily. Think of it—seven persons out of every ten die because some one has blundered, because some one was timid.

Physicians must educate themselves and then educate you. Failure of the physician to grapple a case properly at the right moment is responsible for forty thousand deaths yearly. Health boards must be truer to themselves and to the community. The public should insist upon special qualifications and greater responsibilities in our health departments.

Everywhere the consumptive, as a rule, is simply a neglected victim of tuberculosis. He is the only sufferer from disease who is denied necessary relief. Physicians must make more painstaking examinations, and unless they have mastered the methods of making a rapid diagnosis, should in the interest of humanity turn the case over to some one who can make a diagnosis. There is no excuse for treating a so-called simple cough for five or six months and then turning the patient over for an examination to see if he or she cannot be admitted to a sanitarium. At the present time the appalling loss of life and health constitutes a confession of ineptitude, apathy and neglect.

There are many reasons why the poor consumptive is the saddest thing in the world. Living as I do almost in the shadow of a great state sanitarium, I can see the outstretched hands of young men and women, asking for what? Asking for a chance to be saved in the next decade. It will be the duty of the physician, of the philanthropist, and of the cities and State to see that this supplication is not made in vain.

The manufacturers in this great State of Massachusetts by their magnanimity and generosity have opened up that great field of industrial philanthropy which must soon link hands with every Christian manufacturer in the United States.

If the physician will recognize the disease in its incipient stages and the manufacturer will care for the employee in the incipient stages, if the states will build more sanitariums for these early cases, the sad spectacle of advanced consumption will soon disappear from our midst.

CHAPTER III

Going West for One's Health

The physician who tells you that if you have consumption you must travel hundreds of miles to regain your health may be right in a certain number of cases, but in eighty per cent.—or in eight out of ten—he is wrong. The more I study this disease the more I am convinced that there are two vital reasons why one should consider most carefully this question of leaving one's native climate if one would accomplish a cure that would be permanent. The question of arrest of your disease is small when compared with the word permanent—for an arrested case in one climate too often turns to a rapidly developed case when subjected to changes under less favorable climatic conditions. Therefore, before sending a patient away from home, the physician should ask himself, first, if the case in hand can be cured under the conditions and at the place he would designate, or whether he simply hopes to obtain an arrest of the disease; and, secondly, is it possible that acting upon your advice and making use of the teaching which you are sure to give, will not the patient be taking less chances if he remain at home, where you are sure he or she will receive proper treatment; and if the disease is arrested are not the chances better for a permanent cure?

I maintain there are cases arrested and cured in home climates which are much less liable to relapses and advances towards incurable cases than those cured or arrested in one climate and then returned to a different atmosphere. This to my mind is an all-important question and one to which the physician and patient have in the past given too little thought.

If I had money and early or incipient consumption, I would consult the best authority upon this subject and take his advice about leaving home; but, if I did not have money, I would appeal to any physician in my city or town who I knew had and was taking interest in such as I. I would rely upon his judgment and follow his advice, even to the minutest detail.

Times without number in the last few years my attention has been called, in my own city, to the fact that some husband or brother had been sent away to some distant point, had been told that if he could reach such and such a place he could secure employment and get well, only to find when he arrived there ten men to every position, and that now failing to secure employment, being without funds, he must die, because he could not secure the money necessary to bring him back.

Physicians giving such advice are not only inflicting injustice and cruelty upon the patient himself, but breaking the hearts of loved ones left behind. This practice among the medical profession should cease. If you have been careless in your early diagnosis (and today there is no excuse for this), or if you see the case late, tell the truth. You

know, or you should know, that the great western states are to-day filled with those sent there by some physician. It is bad enough to have consumption, but it is harder still to stand the taunts of some unscrupulous boarding-house keeper, or to be pointed at as a "lunger," who is in every one's way and who, because "he has not the price," cannot get back home.

The American Medical Association would do well to take up this most important question and publish a circular to be sent to physicians placing before them the reasons why a consumptive without money should be kept at home. The expression, "Oh, go and rough it," is uttered either through ignorance or through an improper amount of consideration for humanity. If you can rough it in the West, you can get well at home. The same money spent in railroad fares would pay for a number of months at some sanitarium, or some place in the country where sanitarium régime can be carried out. I hope in the next few years this practice will pass into oblivion as far as the doctor is concerned. Before you give advice look upon the unfortunate as you would upon a brother. If someone is waiting for you let him wait and remember that five minutes' consideration will ofttimes save a life. If you find that you cannot speak advisedly send him to someone who can; I am now speaking to the physician.

To the patient I want to say, think well of what I have written at the beginning of this chapter. Remember that a day or two makes no difference with your going away, anyhow. In conclusion I

want to say that you stand a much better chance in a home climate surrounded by friends, someone who cares for you, than you do to travel hundreds of miles and then wake up in the morning and find yourself surrounded by an unsympathetic people tainted by commercialism, chilled by the fact that you have two things: Poverty and Consumption.

CHAPTER IV

The Warfare Against Tuberculosis not a Hopeless Struggle

Dr. Edward T. Devine, in his illuminating work entitled "Misery and its Causes," gives us his conclusions after a thorough investigation of all the facts connected with the cases of 5000 families who made application for aid from the Charity Organization Society of New York, in the two years ending September 30th, 1908. He finds no less than twenty-five disabling causes occurring in various combinations. Of the twelve chief causes for seeking charitable assistance, unemployment leads, closely followed by overcrowding; widowhood comes next, and that in turn is followed by chronic physical disability, temporary disability, intemperance and laziness. "The impression," he concludes, "with which we come to the end of a survey of these families is that the average of economic efficiency is low, whether it is due to physical disability, deficiency in character, a low grade of intelligence or inadequate education."

It is the purpose of this book, if it has any purpose, to make the average of economic efficiency high. I have not dwelt intentionally on the weak things, the failures or the handicaps of life. There are enough writing books of that sort, God wot. I

have not attempted to point out to you ideal and impossible conditions, absolutely unattainable by the workman earning $1.50 or $2 a day. I have tried to say what I had to say in language that even a child could understand, and the instruction that I have given has been so plain that the wayfaring man, though a fool, need not err therein.

It will doubtless be said by some that the conditions depicted in this book are only those obtained in a highly civilized community, such as Massachusetts is; that breadwinners living in other and less favored states cannot have the advantages so generously thrown open to the three or four millions residing in this Commonwealth. I hope before I get through this chapter to point out the fallacy of that statement and to show how by mutual co-operation between capital and labor every working-man and every working-woman can be as well off, no matter where they live, as the artisans and mechanics on the shores of Massachusetts Bay. But before I proceed to that, let me call attention to a few significant facts. One is that the chances of a poor consumptive getting into a first-class institution where his case can be cured if it is still in an incipient stage grow brighter every day. As a matter of fact there are more free institutions for the care and cure of those afflicted with tuberculosis in the Eastern States than there are institutions run on a money-making basis. In the State of New York alone there are more than 3000 beds in both public and private institutions which are entirely free. Massachusetts has at the present time over 1000 free beds and has, besides, the Rutland Sanita-

rium, with a capacity of 400 in that one institution at a nominal charge of $4 per week per capita.

No state and no section have a monopoly of the sanitariums. New York has thirty-six; Massachusetts, twenty-five; Colorado, nineteen; Pennsylvania, eighteen; New Mexico, eleven; California, ten; North Carolina, nine. In the whole country there are two hundred forty (240) of these institutions with a capacity of 14,000 patients. And the number is constantly increasing. A decade ago there was hardly a score. A decade hence not only every state but every municipality will be equipped with one of these modern life-saving stations manned by a crew of devoted scientists armed with every device that preventive medicine can suggest to rescue poor human wrecks from the hands of the great destroyer.

For more than a decade now there have been five great consumptive Meccas in the United States, and like the great German baths the rich invalid has in time and in turn tried them all. These are respectively: the Adirondack region; Asheville and Southern Pines, and in general the high piney region and sandy soil of the Carolinas; Denver, Colorado, and Colorado Springs; Los Angeles, California; and, lastly, the Southwest, Santa Fé, Albuquerque, Las Vegas, Silver City, El Paso, Phoenix and Tucson. Just at present the Southwest seems to have the call. The sanitariums in the Adirondacks are excellent—none better. In fact, the one conducted by Dr. E. S. Trudeau at Saranac Lake is run by the dean and father of us all, the greatest specialist on tuberculosis in this country. His institution,

too, is most reasonable in its charges, only $7 a week, but it only contains about 100 patients. It is a long, slow process getting admission. White House, Pennsylvania, has an excellent institution for poor consumptives with a capacity of two hundred (200), and a weekly charge of $7 to $9. For many years Denver and Colorado Springs constituted literally cities of refuge for those under sentence of death by the great white plague, but now the tide is turning more and more towards New Mexico and the great silent Southwest. In those vast spaces, far from the smoke and dust and nervous strain of our great cities, men and women are drinking in new life and vigor and courage and youth. It seems to one breathing that air as if one might live forever.

These New Mexican resorts are as superior to those in Colorado as Colorado is to Massachusetts. This is not to decry the Centennial State or its sanitariums, for they are models of their kind, but God Almighty made one climate for New Mexico and another for her sister of the North, and by just as much as the southern state with its warmer airs appeals to those who cannot stand the rigors of the Rockies, by just so much will New Mexico obtain the supremacy over her earlier rival. Luckily there is no feeling engendered by this health-giving contest. In a very real and vital sense this rivalry for patients is one in which the attempt is made by every Commonwealth to demonstrate forcibly who best can serve and best agree.

A most interesting and competent writer in a recent issue of a Boston newspaper stated that in

the New Mexico College Sanitarium in the course of eight years, Dr. E. S. Bullock, the superintendent in charge, reported no less than seventy-one per cent. of the incipient cases absolutely cured, and of the far advanced cases eleven per cent. were saved. I do not think under these circumstances any man, woman or child who has contracted consumption need despair.

But I think I hear you saying, "Well, Doctor, this is all very fine, but when I contract tuberculosis I have no money to take me to New Mexico or even to the Adirondacks. What have you to say to me?"

I have this to say to you: Go to your employer and ask him to write to me and I will explain the details whereby more than 20,000 men, women and children are protected in this city from the ravages of the great white plague in all our stores and nearly all our shops by what is known as the "MERCHANTS AND MANUFACTURERS' AGREEMENT." This is an agreement entered into voluntarily by our merchants and manufacturers whereby they pay the charges at our State sanitariums for a probationary period of thirteen weeks for any of their employees who have fallen victims to tuberculosis.

By this method, instead of keeping a tuberculosis employee at work until it is not only too late for him to get well, but he has succeeded in thoroughly infecting his fellow workmen, the employee is removed at the first evidence of the disease and the economic efficiency of the entire establishment is always kept at high-water mark.

No simpler, saner, surer plan for keeping the American workman supreme, physically and mechanically, and his product hygienically perfect has ever been devised. In the long run, in a commercial civilization such as the twentieth century boasts, the absolutely healthy nation will win. It is said that knowledge is power, but I say that knowledge unaccompanied by physical health and strength is weakness.

Alexander Stephens was a great man, but Abraham Lincoln was a greater, for Abraham Lincoln could do all the things intellectually that Stephens could do, and he could do more—he could split rails with his own hands, and he thereby contributed something tangible to the assets of the republic—a contribution that the eminent Georgian could neither add to nor take away.

I claim nothing for this contribution to modern economics, other than the desire to make it known. To David H. Fanning belongs the credit for its launching. This vigorous old man, who will, August 4th, 1910, celebrate his 80th birthday, the head of a great business, whose ramifications extend through both hemispheres, carrying on his shoulders at four score years a burden that might stagger a man at half his age, is the author of this plan.

At a Bryant Festival held in the city of New York in honor of his 70th birthday and in response to an address by George Bancroft, for many years a resident of Worcester, William Cullen Bryant said, "Much has been said of the wisdom of old age. Old age is wise, I grant, for itself, but not wise for the community. It is wise in declining new

enterprises, for it has not the power and the time to execute them; wise in shrinking from difficulty, for it has not the strength to overcome it; wise in avoiding danger, for it lacks the faculty of ready and swift action by which dangers are parried and converted into advantages. What a world this would be if it were made up of old men, generation succeeding generation of hoary ancients who had but half a dozen years or less to live. What new work of good would be attempted. What existing evil or abuse corrected. What strange subjects would such a world afford for the pencils of our artist! Well it is that in this world of ours the old men are but a very small minority."

And yet it was one of these old men who set in motion in this agreement one of the most altruistic measures of modern times. Many establishments have adopted profit-sharing plans by which they hoped to incite their help to extra exertions and hence greater dividends. Some, indeed, have established pensions for their aged, but none have risen to the heights attained by David H. Fanning when he declared that his responsibility for his employees extended to the protection of their health, and that he would no more allow disease to steal away their employment than he would allow slander. It was forty-five years from William Cullen Bryant to David H. Fanning—a generation and a third. Bryant at seventy asked what new work of good would be attempted. Fanning at eighty answered the question. The great journalist, poet, author, wondered what existing evil or abuse an old man might be expected to correct, and lo—it was

reserved for one even older to correct the greatest physical evil of our times, the abandonment of the poor but honest laborer, suffering from the deadliest of all diseases, to a pauper's grave.

If the manufacturers of this country, north and south, east and west, will place their employees, as soon as they are found to have the disease in an incipient stage, in a sanitarium and will support them while there, in a generation we shall render consumption as unusual as typhoid fever and as harmless.

'Tis a consummation devoutly to be wished, and as we stand here almost at the very portals of the promised land and consider the tremendous impetus that has been given the practical solution of this mighty question by the actions of these manufacturers and merchants of old Worcester County, under the leadership of this 80-year young business man, no such gloomy view of life occurs to us as occurred to Bryant. Rather are we fain to say, as we consider his act and its prophetic results, far greater and more important than he himself imagined when he pledged himself to their execution in his business, that he literally builded better than he knew. It may be that in his case as in so many others—

> "The soul's dark cottage, battered and decayed,
> Lets in new light through chinks which time has made;
> Stronger by weakness, wiser men become,
> As they draw near to their eternal home,
> Leaving the old, both worlds at once they view,
> That stand upon the threshold of the new."

CHAPTER V

Patent Medicines and their Effects

My advice to you is take no patent medicines at all. Why? Because patent medicines are gotten up to sell; because patent medicines contain a large per cent. of alcohol, and many diseases are made worse by the taking of alcohol in any form; because nearly all of these medicines claim to cure nearly all diseases, and finally because you cannot diagnose your own disease.

Suppose, for instance, you have a slight cough and you at once rush for a so-called cough mixture to stop that cough. Now if it should happen to be tuberculosis, you do not want to stop it; the raising of mucous is the way to get rid of the bacilli of tuberculosis, so instead of curing the disease, you are helping it on.

Suppose, again, you are suffering from acid dyspepsia. You may take medicine that contains more acid, thus making it worse. Suppose you are suffering from an inflammation of the bladder due to too much acid in the urine. If you take a medicine containing acid, as many of them do, and alcohol, then you immediately make the trouble worse.

Suppose, again, that you are suffering from a condition of the stomach caused by a sluggish liver. Many patent medicines tie up the secretion, which

in this case should be freed. Again you are nervous and you want a nerve tonic. Now, many of the so-called nerve tonics contain a large amount of alcohol, while alcohol is just the thing that you should avoid. Many a life has been lost, many a simple ailment has turned into a chronic disease by the taking of things which were just the things which should not be taken. Your health is one of the things you must strive to maintain. Why? Because it means dollars and cents to you, and its impairment means a crushing burden of debt. In this enlightened age we must seek to prevent sickness rather than cure disease.

If you do not feel well, you want to know what the matter is, and no one can tell you better than a qualified physician. Perhaps you are saying to yourself at this point: "Oh, well, you doctors say that and you run down patent medicines because they hurt your business." That is not true. Patent medicines help the doctor. It is not in the treating of acute diseases doctors make their money; it is in the chronic diseases which they are called upon to attend. That is where they reap their harvest.

I am simply addressing you because I have promised to show you how to protect your health. If space permitted, I might take up a list of medicines advertised to cure nearly everything and show you where in your individual case the medicine would be just what you should not take; that instead of curing you, it must simply make you worse. Happily, as I write, patent nostrums are being sold less and less, and as people become more enlightened

they are taking less and less of them, because they are commencing to think for themselves.

In conclusion I want to repeat what I have already said, and that is, if you prize your health and the health of your family, let all patent medicines alone and take medicine only when prescribed by a reputable physician. Live so that you will not feel the need of medicine. Avoid the vicious habit of filling up on medicine every time you feel indisposed. It is harder to break that habit than the habit of intemperance or cigarette-smoking.

If disease actually exists it must be treated, not by a shotgun, but by the application of science. The Circle in the November, 1909, issue, gives the following as a result of taking patent medicines: 30,000 cases of poisoning, 40,000 cases of addiction to the drug habit. Eight thousand deaths result annually from taking patent medicines.

CHAPTER VI

The Home as a Sanitarium

If you are poor and have no means, your home must be your sanitarium. How shall it be arranged to be most effective in helping you regain your health? Many times within the last ten years have I been brought face to face with this question, "Can I get well at home"? The answer should always be, "Yes." Why? Because the germs of tuberculosis are the most inactive of all germs. The term "galloping consumption" is a misnomer. True, the disease seems at times to work quickly, but in these cases it has been lying latent in the system, getting its root, as it were. It has been unrecognized, treated for simple bronchitis or a little "run down" condition, when suddenly it springs into life and comes on with a mad rush. There is no time to be lost either waiting for a vacancy at some sanitarium or waiting until you get a little stronger. You must begin action at once.

Let us see how we can imitate a sanitarium, using the home in summer. We must keep the house opened and screened. Sleep if possible on the piazza, or if this is not practical, use the roof. Keep in a reclining chair in the open air. If you can afford it get a half tent. This consists of a

frame of steel tubing which can be folded together when not in use. Your physician can easily instruct you how this can be made. Stay out of doors, except at such times as the weather will not permit. Mind and body must be at rest; don't worry. Follow closely the instructions of your physician or district nurse relative to eating, sleeping and bathing. In cold weather the bed must be covered with a sufficient number of blankets to assure comfort and warmth throughout the night; still the covering should not be so heavy as to press down upon the body. If blankets cannot be obtained, put several layers of newspaper between two layers of dark-colored flannel. The so-called Klondike bed can be constructed very cheaply; the method can be obtained from any anti-tuberculosis society in your city or town. In these days, upon application to any of these societies, full information will be given.

Before establishing your home sanitarium it is always best, if in the city, to call upon the tuberculosis nurse who will give you full instructions; if in the country, you can practically live out of doors and that settles the question. If you desire more complete information, a line sent to any society for the prevention of tuberculosis, of which there are now over three hundred in the United States, will bring you all the information necessary. Then place yourself in the hands of some physician recommended by this society, for they are closely in touch with all physicians doing this work. Ten minutes' instruction from a physician who has made a study of this disease will give you all the details

necessary to begin with. He will then advise you at each visit if there are any changes necessary to be made. Follow his instructions carefully; remember your physician is interested in your case, no matter what your circumstances. I have yet to find a town where there is not some kind-hearted person who is willing to assist you and give you advice. They in turn can procure for you printed instructions relative to food, exercise, bathing, sleeping, etc., which you may read and follow.

Nearly every library now has books upon this subject which can be procured and read. Getting well at home means the following out to the minutest detail of the instruction imparted to you; much depends upon yourself. At a sanitarium you get well because you are obliged to follow minutely every rule laid down. At home, you get well by following to the very letter the advice given you. It is your own life that is at stake.

CHAPTER VII

Consumption Among School Children—its Cause and Prevention

In 1904 through the daily press I strongly advocated a course in school hygiene, supplemented by physical examination of school children. I have also at different times called school authorities' attention to the fact of poor ventilation of school buildings as a predisposing factor in tuberculosis. My conclusion was drawn by observation made during seven years while a member of the Board of Education of this city. I now say that school buildings in many cities are the poorest ventilated of all public buildings, and early in January of this year, before a body of 700 educators, in a paper read by me, I pointed out the necessity of better ventilation and its relation to health, not only of the present generation but of the men and women of to-morrow.

The present curriculum of our public schools is overcrowded. The present system of education, coupled with poor hygienic surroundings, is sending out into the world too many physical wrecks; a more thorough system of physical examination among school children is needed. The results of various investigators are at variance as to the exact prevalence of tuberculosis among school children,

yet all agree upon the question of better school hygiene, coupled with a course of proper school gymnastics, supplemented by thorough and painstaking examination, and the separating of the weak from the strong.

It has been my decided opinion for the last seven years, unless the present school system undergoes a change, as the years go on our national vitality will suffer in consequence.

For many of the statistics in this chapter I am indebted to School Document No. 2, submitted by a commission appointed by the School Committee of the city of Boston. The researches of this competent body bear out my assertion made in this chapter and at previous writings. The report follows:

REPORT OF THE COMMISSION APPOINTED BY THE SCHOOL COMMITTEE OF THE CITY OF BOSTON TO INVESTIGATE THE PROBLEM OF TUBERCULOSIS AMONG SCHOOL CHILDREN

(School Document No. 2, 1909.)

"*Mr. David A. Ellis,*

Chairman Boston School Committee.

"Sir: The report of the commission appointed by the School Committee of the city of Boston to investigate the problem of tuberculosis among school children is respectfully submitted herewith.

"This report is based on an estimate of the number of tuberculous children in our public schools, and the evident necessity for special provision for

their care. Various careful investigations in other communities have given us a reasonably accurate basis for the conclusions which are given below.

"The results of numerous investigators are somewhat at variance as to the exact prevalence of tuberculosis among children. Many trustworthy authorities, notably the French and German, believe that infection with tuberculosis is nearly always acquired in early life; that during childhood the tuberculous focus often remains inactive; that as the child reaches adolescence and is submitted to the confinement and strain of school life, or in adult life meets the strain then put upon him, the lessening of the body resistance is sufficient to permit the organisms to gain the upper hand, and active tuberculosis in some form develops. This view seems to be gaining ground.

"The most exact and trustworthy information is furnished by autopsy statistics, of which an abundance is available.

"Grancher (Paris) says: 'The great majority of children who come to autopsy in hospitals show tuberculosis of the bronchial glands, not recognized during life.' Naeglli (Germany) found 33 per cent. of all children coming to autopsy to have tuberculosis of the glands. Among 1432 autopsies on children in the hospitals of Paris during the past four years, Comby found 429 tuberculosis subjects, or approximately 37 per cent. He further found that the percentage of infections rapidly increased with the age; that is, for the first two years of life, 25 per cent. were tuberculous; the third year, 45 per cent.; fourth year, 50 per cent.; fifth year, 60

per cent.; sixth year, 65 per cent. Similar statistics were obtained by Wollstein, pathologist at the Babies' Hospital, New York city. One hundred and eighty-five of 1,113 autopsies on children under four years showed tuberculosis. Twelve per cent. of all under one year were tuberculous, while during the second year 33 per cent., and in babies over two years, 34 per cent. were affected.

"This marked increase in the percentage of deaths due to tuberculosis during the first years of life is even more definitely shown by the following: Kirschner has compiled a table based upon Prussian statistics, giving the number of deaths from tuberculosis in each 100 deaths, grouped according to sex. This table brings out the significant fact, now generally accepted, of the greater prevalence of tuberculosis among girls in the first years of life:

In Year.	Males.	Females.	Total.
0-2	1.61	1.60	100
1-2	4.46	4.55	100
2-3	5.84	6.48	100
3-5	6.44	7.41	100
5-10	9.26	12.02	100
10-15	18.65	29.74	100

"Dunn has combined all available statistics of the percentage of deaths among children shown at post-mortem examination to be due to tuberculosis.

First three months,	0-2 per cent.
Second three months,	16-17 per cent.
Second six months,	22-26 per cent.
1-2 years,	42-44 per cent.
2-10 years,	67 per cent.
10-15 years,	64-67 per cent.

"It may very reasonably be objected that such mortality statistics do not truly represent the prev-

alence of tuberculosis among children, since they are based on deaths among children in hospitals only. On the other hand, as has been shown by several writers on the subject, the figures fall far below the actual percentage of tuberculous children, and must be considered as a minimum; for it must be remembered that many children survive their early tubercular process and either remain permanently well or succumb to a fresh outbreak of the disease in later life. These cases, therefore, do not appear in any statistics derived from autopsies among children. Tuberculosis in early years of life is far less fatal than in adults.

"Though more difficult to obtain and considerably more inaccurate, the clinical investigations upon the prevalence of the disease previous to the fifteenth year probably come more nearly to the facts. Among the many published during the past few years, the following may be taken as the most trustworthy. The use of the newer methods of diagnosis, and particularly the recent employment of tuberculin, have made possible a more accurate study of this problem. The results have been most surprising, in that they have brought to light far greater frequency of tuberculosis in infancy and childhood than was previously suspected.

"In 1907 Lowman found 100 children with tuberculosis in 500 children examined at the tuberculosis dispensary in Cleveland, Ohio, and he did not use tuberculin. He further showed by statistics that, contrary to the previous teaching, the chief danger to school children lies, not in the ordinary contagious diseases, but in tuberculosis.

"Roux and Jasserand, working among the school children in Paris, found 40 per cent. of those examined with signs of the disease. Pulmonary tuberculosis was present in 29 per cent. of 2295 children in New York, examined by Dr. Williams during the year 1905-06.

"Recently Floyd and Bowditch studied 1000 cases in the outpatient department of the Boston Consumptives' Hospital, and state that about 36 per cent. of these presented definite pulmonary lesions, and that about 30 per cent. more gave evidence through signs and symptoms of tuberculosis elsewhere. Sixty-seven per cent. of these were children of tuberculous parents.

"Philip has made a careful examination of groups of children in various public schools in Edinburgh, the children being selected at random by the head masters and without reference to their physical condition. Thirty per cent. were found to have definite stigmata of tuberculosis.

"Miller and Woodruff found 51 per cent. of 150 children of tuberculous parents to be positively tuberculous. Sachs, in a similar investigation of 332 children, found 89 per cent. to be tuberculous.

"Recent studies demonstrate, contrary to the previously accepted opinion, that tuberculosis in childhood, as in adults, most frequently affects the lungs. It is a fact, however, that the bones, glands, joints, intestines and other organs and tissues are much more frequently affected in children than in adults; but considerable evidence of a reliable character has been collected which would seem to indicate that even tuberculosis of these tissues and

organs is usually secondary to primary tuberculosis of the lungs.

"Several general facts in regard to the nature of the disease in early life should be stated because they indicate the appropriate measures to be adopted. First, children are much more susceptible to infection with the tubercle bacillus than adults; second, the presence of the disease in children is very often less evident; third, the disease is in a much smaller percentage of cases fatal; fourth, the disease more frequently remains in a dormant or latent form than in adults. In this form it is probably the real cause of very many sickly, poorly developed and backward children.

"No argument is necessary to show that the dangers of infection in infancy and childhood are greater than those in later life. The sources of contagion are evident. The portal of entry of the tubercle bacillus is still a question on which there is a wide difference of opinion. On the one hand, it is held that the organisms commonly gain entrance to the body through the intestinal tract by means of infected or contaminated food, while, on the other hand, the lungs are believed to be the portal of entry. In either case, the sources of infecting germs are essentially the same, and the methods of prevention are identical.

"Clinically, tuberculosis may be roughly divided into two classes; the closed and the open. By 'closed tuberculosis' is meant those cases in which the tubercle bacilli are not thrown off from the body, and these cases are not to be considered as dangerous to others, in the sense of being infecting

foci. In this group may be included the majority of those with bone, glandular, meningeal, spinal and intestinal tuberculosis, hip disease, scrofula, and many cases in which the lungs are involved, but the process is not active or not advanced enough to give rise to much, if any, expectoration. The majority of tuberculous children fall within this closed class.

"'Open tuberculosis' includes all cases of consumption in which through expectoration tubercle bacilli are thrown off from the lungs and such cases of tuberculosis of other tissues as to give off tubercle bacilli through the medium of discharged matter. Here, in consequence of the danger to others, prophylactic measures are of the first importance.

"The more infecting cases of this latter class fortunately represent but a small proportion of the children, and since they are usually too sick to attend school, offer no great burden for the school authorities. The consideration of these cases belongs to the School Committee only so far as to see that they are strictly excluded from the schools. The duty of caring for these should be assumed by the health authorities.

"For the earlier cases (most of which are still closed tuberculosis) the commission believes the School Department should make special provision, as such children can be restored to health while regularly attending school. Their progress in their studies is obviously as a rule slower than in the case of healthy children, and the standard of the work is thus inevitably lowered. A second and even more important reason for furnishing separate and special

instruction for this group is that under the ordinary routine many of them sooner or later break down, or are in such poor health that they do not derive proper benefit from the money expended on them by the community. This economic loss to the community in the case of school children with tuberculosis seems to your commission to be one of the important reasons why they should be separated and given special instruction under conditions particularly suited to build up the general health. Statistical studies are not wanting to fortify this position. A single quotation will suffice. In Illinois it was recently shown that the State each year expends $1,187,000 in educating children who die of tuberculosis before reaching the twentieth year (Thomas).

"Instead of allowing the tuberculous to become defectives, they may with few exceptions through proper care during the school years be cured and made useful citizens. 'To provide properly for the tuberculous is enlightened policy; to provide for the defective is charity.' (Lowman.)

"Children are extraordinarily susceptible to favorable and unfavorable influences, and with the entrance into school many conditions unfavorable to health must be faced, conditions which in a general way favor the development of tuberculosis. The most convincing example of this is seen in the frequency with which the so-called 'pre-tuberculous' or the suspected cases manifest evidences of active tuberculosis before the termination of their school years. These should be shielded from overwork, developed physically under medical direction by

the most careful and intelligent regulation of the hours in the open air, provision for the most perfect ventilation and by proper feeding.

"As stated at the beginning of this report, we have no definite figures as to the number of tuberculous children in the public schools of Boston. The examinations made in the out-patient department of the Boston Consumptives' Hospital (Floyd and Bowditch), however, where the tuberculin test was employed, have shown a considerable proportion of debilitated and undeveloped children, especially those from tuberculous families, to be tuberculous. Of the class not strictly tuberculous, but sickly and poorly nourished, and consequently favorable candidates for infection, there are unquestionably a large number, and for these special provisions, to the end that they shall be built up physically, are of as much importance as for the strictly tuberculous.

"Your commission believes that 5000 is a conservative estimate of the total number of tuberculous children in the public schools of Boston.

"The Boston Association for the Relief and Control of Tuberculosis opened in July a day camp for tuberculosis children. In September the day camp was converted into an outdoor school in conjunction with the School Department. Thirty-one children have been at the camp or school a month or more. Of these, sixteen have been considered by the examining physicians to have had their tubercular process arrested, have been discharged and recommended to return to the ordinary school; four have been discharged because they moved from Boston

or for other reasons; in two the disease was so advanced they were sent to a hospital.

RECOMMENDATIONS

"In view of the considerations above presented, your commission respectfully offers the following recommendations:

"1. That more systematic and thorough examination be made of all suspicious children and of all found to be of tuberculous parents.

"2. Those already infected they would divide into classes, and make recommendation as below given:

"Class 1. Those cases already well advanced, which do not belong in the schools at all, as previously stated above.

"Class 2. Less advanced, but definitely tubercular, both open and closed. Here the problem is primarily one of health, and education should be the secondary consideration if the two conflict. For these the commission would recommend outdoor schools, with the belief that by this means the child may be restored to health without loss of instruction. The outdoor school means a life in the open air, the proper and sufficient feeding of the child and the providing of suitable warm clothes, etc. The commission recognizes that the feeding of one group of children (the tubercular) by the School Department introduces a new matter into the problems of the School Department and one fraught with serious difficulties. The commission would suggest that these children might be placed under the care

of a hospital department, which would furnish food, clothing, etc., as for any other patient, the School Department merely keeping school for them, and as is now done in connection with the Association for Relief and Control of Tuberculosis. Indeed, the Boston Consumptives' Hospital department now maintains a day camp, where many patients come every day, receive all their food, etc., and go home at night. The addition of a school for these, were they children, would seem proper and just.

"The commission regards the results obtained in the present outdoor school as most encouraging. The first of these schools in America was at Providence last year. This year a number have been opened, but none known to the commission have so many pupils as the school at the Franklin Park Refectory.

"Class 3. A large class, where the tubercular process is not so evident nor so advanced as to give rise to definite symptoms—the 'sickly' child, the 'scrofulous' child, and in many cases of closed but definite tuberculosis—can be included here. This class needs care and management quite similar to the last, but not necessarily carried so far nor so different from that of an ordinary school. These should remain entirely under the School Department. For them it would be wise to have in every schoolhouse an open-air room where the windows are always open, where the consideration of health is given as much or more attention than that of learning.

"A child spends a large part of its life in the schoolroom. Strong, healthy children are those

that have spent the most time in the open air. Life in the open air is the best investment one who is not strong can make. The nearer the schoolroom can approximate to the open air, the larger will be the return to the city on its investment in schools. There would seem to be need in all schoolrooms of a more abundant supply of fresh air; of maintaining rooms at proper temperature, and the lower the better the air; of proper, sufficient and hygienic method of dusting, frequently done; of the frequent washing of rooms; of frequent and prolonged airing of all parts of the schoolhouse by open windows, and every means employed to the end that the place and air where the child spends so much of its life be as near as possible that of outdoors in a dustless region.

"Finally, the commission strongly recommends that a further experiment with an outdoor school on a larger scale be tried next year, and that for this purpose some suitable building be selected.

"The commission will gladly further assist in this matter in any way that it can, should the School Committee so desire.

"JAMES J. MINOT, M.D.
CLEVELAND FLOYD, M. D.
THOMAS J. LEEN, M.D.
EDWIN A. LOCKE, M.D.
ELLIOTT P. JOSLIN, M.D."

CHAPTER VIII

The Importance of Early Attention to Catarrh in Children

Mothers have now heard so much about enlarged tonsils and adenoids and their relation to the health of a child, that it seems hardly necessary for me to say that every child should be examined at an early age for these two growths, and if found should be at once removed. Your child's health will be so much improved after this operation that you will advise all your friends who are mothers to follow your example. But the most important disease of the nose and air passage does not receive the attention that its importance as a source of ill health demands. Many of these catarrhal diseases begin as early as the first year of infantile life, and while not necessarily dangerous to life, they have a serious effect upon the development of the child, and are often the very things which start chronic diseases and leave their mark upon the man or woman in adult life. Just as sure as you neglect these diseases, you will find your mistake a little later on. A mucopurulent discharge from a child's nose should never be let alone, but should be treated at once. The assertion that a child will grow out of it and that nearly every child has catarrh in this climate is all nonsense.

The child may apparently get better, but it will never get *well.* The getting better simply means that the disease has changed form. The statement that nearly every one has catarrh in this climate would be given the lie if we treated the catarrhs of childhood. As it is to-day owing to neglect, it is a fact that many do have catarrh; however, the cause is not the climate, but neglect.

Only a few years ago physicians were sending every one out of New England to be treated for early consumption; to-day it has been conclusively proved that we can cure as many cases in New England as in almost any other climate.

The effect that neglected catarrhal inflammation of the upper air tract has upon the ears is certainly important. Many of the best specialists, including Knapp, tell us that if a child escapes ear disease during childhood, he is safe for the rest of his life, barring accident. The ears are more likely to be affected by inflammation of the nose and throat than any other organ, and this is especially true during childhood. There are a score of reasons for this. Children are very likely to have inflammation of the nose and throat, and they rarely ever know how to clear the same, and if this secretion is retained, it keeps up a state of chronic inflammation for many months, and this alone is a fruitful source of disease of the middle ear. The so-called purulent rhinitis, or catarrhal condition, may exist with adenoids as it may exist without. If caused by adenoids it will disappear upon removal, but if it is a separate diseased condition the removal of adenoids will not effect a cure, and the

catarrh must be treated. It will never be outgrown. If we would stop middle ear disease in children, we must treat the catarrh. Catarrh can be cured.

Bosworth has maintained for many years that atrophic rhinitis in adults, causing such foul breaths, was due to an untreated case of catarrh of childhood, and the studies of Grunwald made in the last few years seem to confirm the opinion of Bosworth.

Now you will ask me in what way and to what extent catarrh will affect the general health. First, it interferes with sleep; the child will be anemic and pale because the blood does not receive sufficient oxygen: the chest will not be developed and the nervous system must suffer. Mouth breathing causes bronchitis; the digestion is interfered with, due to the swallowing of large quantities of muco pus, which is constantly present in the nose and throat, and which they have not the knowledge and ability to expectorate. The cervical glands become affected from this inflammation, and much of the so-called scrofula is due to this same cause (endocarditis heart disease), and acute rheumatism is caused by products of a tonsilar abscess gaining access to the general circulation.

The subject seems to me to be of the utmost importance to you, mothers and fathers; it should not be lightly passed over, for the effects are passed on to manhood and womanhood, causing many times, along with the other diseases that I have mentioned, loss of hearing, which we all abhor.

CHAPTER IX

Are We All Tubercular?

My conclusion, based on a careful study of this subject for the last ten years, is that 90 per cent. of all human beings are tubercular at some time during life. Naeglli reported, after an exhaustive study of this subject, that a careful examination of a large number of bodies in the autopsy room had convinced him that in at least 90 per cent. of all bodies examined, he found tubercular lesions. Burkhardt found in the material investigated at Dresden about the same proportion as Naeglli. Lubarsch placed the percentage at 70 per cent. Nucker's figures were about the same as Lubarsch's. The latest contribution to this question is by Bertzke, who had examined 1100 bodies in Berlin. His results are somewhat lower and he believes that Naeglli's statement should read, "In the autopsy material of large cities nearly every adult body is tubercular."

Certain it is today that many of the deaths from pneumonia are simply tubercular processes. And the death certificate should read tuberculosis instead of pneumonia. Many so-called catarrhal apendicts, if a microscopical examination was made, would show the tubercle bacilli. We have paid too much attention to the mere cutting in surgery and

not enough to the microscope and clinical symptoms. The next few years the study of preventive medicine will save much cutting, which in the past has developed into a craze among certain members of the medical profession.

It has been estimated that in ten years in the city of New York alone, twenty thousand women were unnecessarily unsexed, and their health in over 60 per cent. of the cases has never been regained. Please do not understand me to say that I do not believe in surgery, for I do. It has relieved untold suffering and saved many lives. But we Americans have been too willing to cut. The hospitals of the future will pay more attention to bacteriology and the application of clinical knowledge than they do to the so-called exploratory incision, which means cutting with a hope of finding something that the clinical symptoms do not reveal.

Tuberculosis of the joints in children is often treated for rheumatism and a course of massage is advocated, when the limb should be put in light plaster casts and kept at rest. Understand, also, that I do not think that every ailment, medical or surgical, is tubercular. But when the autopsy table reveals in about 90 per cent., lesions active or healed, then I say it is about time that we should pay more attention to the study of this disease.

No wonder it has been called the Great White Plague. Physicians have got to learn, as well as the laity, that certain natures are susceptible to this disease, and these persons should be carefully watched.

Huber says, in commenting upon it in the opening chapter of his book, that it is with a sense of melancholy one contemplates the long death roll of tuberculosis from which the world's great men and women have succumbed untimely. He further says that had it not been for this detestable parasite, Bastien-Lepage might have given us another Joan of Arc to feast our eyes upon; Rachel might for many years have continued to permeate her audience with the spirit of divine fire; Paul Jones might have added zest to our War of 1812, and more of the splendid war stories of Stephen Crane might have been written; Robert Louis Stevenson's delightful lace-work might have been continued; another "Song of the Bells" might have been written by Schiller; John Keats might have given us another Endymion, Nevins another "Rosarie;" Von Weber another Euryanthe overture; Chopin might have dreamed another First Polonaise, and the tender notes of Sidney Lanier might even now be heard. Henry Purcell, John Sterling, Henry Timrod, Artemus Ward, Henry Kirke White, Thoreau,—such names are but a moiety amongst those of the world's nobility whose precious lives were cut off by the Great White Plague. Meditate for a moment upon these wonderful personalities, interwoven with music, art, courage and power, and remember that genius like that is as irreplaceable as Shakespeare himself, and once gone is gone forever.

CHAPTER X

After the Sanitarium or Preliminary Rest-cure at Home. What Next?

For the subject text to this chapter I am indebted to the "Journal of the Outdoor Life" of May, 1909. I would ask each reader of this book to follow closely the directions for maintaining your health, already gained perhaps by a struggle and more or less expense and anxiety. Do not allow yourself by carelessness to lose what you have gained and which justly belongs to you. Add to, if possible, rather than draw from your capital, which is your health. An empty purse is bad enough, but a future devoid of health is a bankruptcy from which one is never discharged.

The following article is written for the patient who for some months has been taking the rest-cure at a sanitarium or under a physician's supervision, and has been told that it is safe for him to go back to work or take up in a measure the old manner of life. It is *not* written for the patient who has just fallen ill and whose disease is in an active stage; this patient requires fuller instruction and will only lose time if he does not begin at the beginning—that is, give up everything for a few months at least and take the cure as it is taken at a well-ordered sanitarium.

When the tuberculosis patient leaves the sanitarium or health resort after a longer or shorter stay and returns to his old surroundings in town or city, he has a great many problems before him and his mind is filled with uncertainties. He feels a timidity not unlike that which every boy or girl feels on first leaving home and starting out to tussle with the world alone. In the sanitariums he has had about him conditions which made it easy for him to do the things that build him up: a free open-air life, opportunity for abundant rest, and people all about him doing the same things that he must do. Also, he has more or less constant medical supervision and a physician to turn to whenever he was in doubt about anything. But now on reaching home, so many things are exactly the opposite of this. In many cases he has to work every day, oftenest in shut-in places, as offices, schools or stores, and, most difficult of all, the people about him, both at work and at home, are healthy people who do not need to be careful. You will find yourself wishing many times for someone who, like you, is not quite strong and must be careful. How often, too, you will think, as you work away, surrounded by wooden desks, stools and chairs, all straight-backed and stern, in rooms none too well lighted, where the air is often warm and stuffy, of your old sanitarium porch with its reclining chairs and comfortable beds, fresh air all about you, and sky, mountains and rivers that used to be so good to watch. You are back in the work-a-day world, and holiday time is over. Your endurance is an

uncertain quantity because it is hard to foretell how much it will be taxed.

A danger with many people is that they *feel* perfectly well and are apt to forget that they are not quite so; in tuberculosis the symptoms may all cease before the disease is really cured. Don't be impatient and try to do everything at the start if you wish to keep on getting stronger. Remember that the best things in life require patient working for, and to become a cure is no exception to the rule. It is the patient who has the pluck to deny himself pleasures, such as theatres, dances and late hours, who is going to keep well and be able to remain at his work.

For some it will be wiser to give up the old indoor occupation and take an outdoor one. This is sometimes difficult to get and often requires capital. Among other things that may be done are truck gardening, raising chickens or squabs, driving, farming, or surveying.

Strange as it may seem, you will find that your friends and your own family are perhaps one of the factors that make things most difficult on return to the old life. You come home fat, ruddy and with all the outward signs of perfect health, and it is almost impossible for them to realize that these things do not mean perfect health. It is easy to understand why they should not, because after most illnesses that are seen every day, these things are the criterion of recovery. Your friends want you to do so many things that are not wise, and if you refuse they often lay it down to overcautiousness, or even selfishness when you *look*

so perfectly well. Your family may make it difficult for you to sit out or take the cure, either because they want you to be indoors with them or because they have the old-fashioned ideas about dampness and cold being dangerous.

The routine of the sanitarium is often the hardest thing for you to submit to. When you get home, it is almost impossible not to fall back into your old habits. The easiest things to do are the things you have always done: your home habits are the product of all the years of your previous living; your sanitarium habits are the product of only a few months of routine life. Sanitarium living is well-ordered and wise, but often seems very humdrum, and you must use all your will-power to keep it up at home. At the end of your day, or in your leisure time, you will often be greatly tempted to go out and have a little excitement, as at the theatre, a dance, or a lodge meeting; to dine out and stay up late; to spend Sunday shut up in the house smoking, reading the newspapers, and eating. These are the things you used to do as a rule, and they are the things you are only too prone to fall back to when you have been long enough from the sanitarium for the teaching you received there to become rather hazy in your memory.

The first weeks and months are the most difficult. If you meet these right, you will feel the ground firmer and surer under your feet as the days go by. When possible, do not let anything hold you back. The first few months do absolutely nothing outside of your work that you are not

obliged to do. *Never* let yourself get *tired out*, and don't go ahead on your nerves. Rest all you can. Form a habit, whenever you can stop for awhile, not of just sitting down, but of lying out flat. This relaxes every muscle and is of great value even if it is only for a few minutes at a time at intervals during the day. If you do these things the first days and the first weeks, you will not tire; you will not be discouraged each night by feeling done up, and as days and weeks go by you will feel you are able to live in the old conditions and gain confidence in yourself. By slow degrees you can do more.

Sleep is such a big factor when you first go back. Get just all you can of it, and the best way is to get to bed early; form a habit of it, and do not let little things break in. Getting to bed early will be one of the hardest things to do, but it pays many times by the feeling of freshness and strength it gives you for the busy hours. Some people who are less busy, or who are in their homes, will find an after-dinner nap a great pick-me-up; it divides the day in two and starts you off all fresh again.

If you have time left over, spend it in quiet pleasures, at least for the first months. Out-of-door recreation is much more beneficial than in-door. If you are strong enough, a garden will furnish interesting work from the time the snow leaves the ground in the spring until it begins to fall again in the winter. More than walking and some other things, it gives you something to think about and plan for. For those who are fond of

plants and flowers it might mean a great deal to keep a garden. A very small plot of ground will furnish occupation for many spare minutes each day. There are digging, raking and fertilizing to do, seeds to be put in, and later on weeding and watering to be attended to. It is a healthy pleasure that keeps you out of doors. For those who are more interested in other out-of-door things there are many to choose from—bird study, botany, photography, driving, fishing, mineralogy. Select the one that appeals to you most, and the more you pursue it, the more irresistible it becomes. You will find yourself daily getting so much more cure in an enjoyable way.

But if you find that you are a little tired after your day's work, and that these things require too much energy—*don't* you *do them,* for there is plenty else to do that is both interesting and helpful. If you have a veranda and chair, stretch out and rest, or if not make yourself comfortable in a well-ventilated room. Take out your books and relax in them. You can forget all your troubles in good books. Quiet games with good friends may be indulged in. Avoid games that are long and exciting. Dances, meaning, as they generally do, late hours, excitement and getting overheated, are especially risky. Severer forms of exercise, golfing, rowing, paddling, ought only to be done on the physician's advice; otherwise you may do yourself incalculable harm.

If you fall ill, whether it is a hard cold, a cough, or tonsilitis, do not disregard, but be proportionately more careful than other people who have no

tuberculosis. These things may mean a serious setback if allowed to drag on. If possible, stay away from work for a day or two, and carefully nurse the illness away at the start. Little things mean so much when you first go home. Avoid exposure of all kinds, and do not run unnecessary risks. Above all, do not let yourself get tired out or exhausted; if you start each morning tired out, you are probably overdoing.

If it is possible, a person will gain a great deal by making a holiday time of his week ends, especially after a particularly trying week's work. If you can get clean away from stores and houses and streets, out into the country, no matter whether it is flat or rolling, and have a whole day or day and a half out of doors, it will rest you infinitely.

A cheerful spirit will do wonders, too; *don't think* too much of what to do to keep well, but *just do it* as *unconsciously* as possible and go on with an easy conscience. Brooding and worry hold many people back more than anything else. It is generally essential on going back to keep in touch with a physician, and in choosing one be sure to select a reliable man and one who understands tuberculosis and the modern treatment of it. If he says you have no trouble, laughs at your being careful and says you can do anything you like, go a little farther and look up a wiser doctor. Let him study your case from the beginning, and enter into partnership with him towards the keeping of your health. Then when a real worry comes along you have a trained man to lean on; bring it to him

and leave it with him, or at least let him lighten it. There will be many difficult places that he can help you over, uncertainties as to whether you are holding your own, advice about vacation, exercise, minor ailments, as colds, indigestion, etc.

There are often trials of another sort on going home. If you still have a cough and expectoration, people may be afraid of you. Some people have a superstitious fear of tuberculosis, think it contagious, like smallpox or scarlet fever. But wiser people will not feel this way, and if you are careful you will not be uncomfortable. Do not forget the rules you have learned in the sanitarium—be absolutely conscientious about the care of expectoration, if you have any. Use squares of cheesecloth, or a pocket cup, as these may be kept inconspicuously in a rubber-lined pocket or rubber-lined bag and carefully burned. The rubber lining can be cleaned with a five per cent. carbolic solution. Always cover your mouth when you cough. Wash your hands often and clean your teeth several times a day. Control your cough. It is best to have a room of your own, but if this is not possible, have a single bed.

Try to be regular about your meals and to enjoy them all you can. Relax utterly, forget about your work for a little while and converse cheerfully. If you can do this, you will have done a great deal towards making digestion easy, and consequently get more out of your food. If possible, don't eat when you are tired; lie down and rest first, even if it is only for a few minutes. Eat slowly, chew your food well, and if you can, rest

for a while after meals. For the maintenance of good nutrition, to have wholesome, nourishing food is a very important matter. Do not overfeed or eat too much of the more bulky food-stuffs, but try to select things that are both appetizing and nourishing, especially good beef, lamb, good butter, milk and eggs, good bread, milk puddings, plenty of vegetables and fruit.

Many people in good condition will find that they hold their weight, without forced feeding, on a generous mixed diet; allowance should be made for some loss which usually comes with hardening. As long as you keep above your old weight in health, worry is unnecessary. But if there is loss continually week after week, and you are going below your old normal, try some extra nourishment, as eggs and cream, or a change of boarding-house if you board. If these fail, take a week's holiday and get out into the country, or away somewhere for a change. You cannot afford to let loss of weight continue, especially if it is associated with fatigue or any of the old symptoms, as fever, night sweats, or loss of appetite.

Use common sense with regard to your clothes. If most of your day is spent indoors, dress for indoors, and put on extra wraps when you go out. For underwear, wool and linen mesh are good. Use a lighter weight in the summer than in the winter. Be very careful about changing your clothes in the fall and the spring. Don't get overheated if you can help it. It is in this way that many colds are contracted. If you do get overheated, try to change your clothes and rub dry.

Don't give up your daily cold sponge bath or cold bath. Remember it is one of the things that will help to keep you well; it is both hardening and tonic. A warm bath should be taken at bed-time once or twice a week. The observance of all the little things give you by just so much a better chance.

When you get back to the old surroundings, you must try in every way to get plenty of fresh air to breathe—fresh air in your office, in your house and everywhere possible. If you can manage it, live in the suburbs rather than in the city, and in the country rather than in the suburbs. The farther out you get the purer the air is; it circulates more freely, and is less laden with smoke, dust and gases of manufacture. Try to form the habit of ventilating your house and office.

If such a luxury is possible, a veranda will mean a great deal towards keeping well, and especially a second floor veranda, because this is so much more private. Make it just as comfortable and attractive as you can, with bed or chair, rugs, light, table, book-rest—everything to entice you out both by night and by day. To a person who has to work indoors during the day the opportunity to sleep out at night is all-important, and means so many hours spent out of doors each day. If this is not possible, try to have a room with plenty of window-space which can be well ventilated and kept fresh all night. The roof can often be utilized when porches, etc., are not possible. A shelter built on the roof makes a very good place to rest or sleep in out of doors.

To sum up briefly, remember in a good many cases that your remaining well depends largely on yourself. If you put your mind to it and persevere in doing all that you know is best, you will get your reward. You have only to think of what has been impressed on you all the time of your stay at the sanitarium. The three great things are rest, good food and fresh air. I put them in this order purposely, although they are in most ways equally important. But if any should stand first for the convalescent, it is rest, to keep always within the fatigue limit. Then comes good food and the maintenance of a healthy, hard body weight, and third comes fresh air. With most people, too, cheerfulness is as necessary as any of these—to enjoy your work, your home, your food and exercise, that is, to derive almost double the benefit out of each of them. Be hopeful and see the bright side. Never worry, but use the energy this would lose for you in trying to get out of your difficulty. Plug along and do the best you know, and after that just trust. The cheerful have a long start of the worriers when it comes to getting well. Even though you have to deny yourself much, you will find plenty of compensations. To quote from Stevenson's "Child Verse:"

> "The world is so full of a number of things,
> I am sure we should all be as happy as kings."

CHAPTER XI

Prevention of the Spread of Tuberculosis

Massachusetts was the first State in the Union to establish a State board of health, which it did in 1869. It was the first State to build a sanatorium for incipient cases of tuberculosis and the first State to erect hospitals for advanced cases.

Below, with its permission, I have incorporated in this work its excellent circular on tuberculosis, and I would advise a careful study of the same, as it contains many valuable suggestions:—

"The prevalence of tuberculosis can be diminished by knowledge on the part of the people of the nature of the disease, and a general application of the principles underlying its prevention and cure.

"Tuberculosis is a disease which spreads from one person to another by germs which gain an entrance to the body generally through the nose or mouth into the lungs, sometimes through the mouth into the stomach and intestines, and rarely through the skin. The germs get into the air mainly from the spit of persons who are suffering with tuberculosis of the lungs. If one member of a family has tuberculosis and does not use care to burn or destroy all spit, this spit dries and be-

comes a part of the small bits of dust in the air which the other members of the family breathe. In this way brothers and sisters and others in the household may take the disease. In the same way the lives of many people are in constant danger in the hotel, the workshop, the library or the railroad car.

"Another way in which germs get into the air is with the particles that fly out from the mouth or nose when persons who have tuberculosis of the lungs neglect to hold a piece of cloth in front of the mouth or nose every time they cough or sneeze.

"Because of these ways in which germs get into the air, it has been found necessary to teach persons who are suffering with tuberculosis how to prevent giving the disease to others, and to teach well persons how to protect themselves and children from the careless or ignorant patients. The following instance shows the importance of keeping young children away from persons who are suffering with tuberculosis of the lungs:

"Two little girls were much in the room and about the bed of a young woman who was suffering from tuberculosis of the lungs, although this was not discovered until later. Within three months of that time and within six weeks of each other both died of tuberculosis.

"Still another though very rare way in which germs may enter the body is with milk from tuberculous women. Likewise, germs may enter the body with milk from tuberculous cows and with meat from tuberculous animals.

PUBLIC HEALTH

I. How the State Protects the Individual, and What Individuals Should do to Protect Each Other

A. The Powers and Duties of the State Board of Health and the State Inspectors of Health

"1. The State Board of Health has for some time been making a careful inspection of dairies and slaughter-houses, in the interest of public health. Milk from unknown sources, or from herds not regularly inspected, should not be given raw to infants or children. Cooking meat and heating milk in a closed vessel for twenty minutes or longer at or above 140° F. destroys any germs present. One especial object of the dairy inspection is to exclude milk from public sale which comes from tuberculous cows, because tuberculosis is occasionally transmitted by cows' milk to human beings. The occasional infection coming from milk leads to swelling of the glands of the neck and to abdominal tuberculosis, but not to tuberculosis of the lungs.

"2. The State Inspectors of Health are required to gather all information possible concerning the prevalence of tuberculosis and to take such steps as after consultation with the State Board of Health and the local health authorities shall be deemed necessary for the protection of the public. If any citizen, therefore, knows of a person suffering with tuberculosis who is not receiving proper care, or who, through carelessness and neglect, is endangering others, it is clearly his duty to notify the State Inspector of Health within his district.

By so doing the patient himself will receive the best possible care, and the health of others will be properly guarded.

"3. The State Inspectors of Health are further required to inform themselves concerning the sanitation and ventilation of factories and workshops in their respective districts, to enforce certain laws relative to the same, and to inform themselves concerning the health of all minors in such establishments. Whenever the family history discloses illness or death of any member due to tuberculosis, the State Inspector of Health makes a physical examination of that minor; and in every instance, whether or not a physical examination is made, a concise report is submitted to the State Board of Health on the immediate sanitary conditions under which the minor works, apart from the general report which covers details relative to the lighting, ventilation and cleanliness of the entire factory.

"Private individuals, physicians, social service workers and organizations of various kinds may be of great assistance to the State Inspectors of Health by calling to their attention any known unsanitary conditions, diseases or influences dangerous to the public health or threatening to affect the same. Instances like the following should be reported immediately to the State Inspectors of Health. A young woman who was working in a candy establishment came to a dispensary of an anti-tuberculosis society for examination. She was coughing and spitting. An arrangement was made for her to enter a sanatorium, where she

could receive the best care, and be taught how to help herself and to protect the health of others.

"4. The law requiring that every public building and every schoolhouse shall be adequately ventilated is to be enforced by the State Inspectors of Health, so that medical inspectors of schools and teachers should notify them of any violation of this law. Notice of any ill-ventilated or overcrowded schoolhouse should be brought to the attention of the State Inspector of Health in whose district the schoolhouse is located.

"5. It is particularly desirable that the tenement and dwelling houses, and shops where persons work on clothing, shall be kept clean, and that the State Inspectors of Health be notified of any infectious or contagious disease present, so that, if an unhealthy condition is found, such orders may be issued as the public safety requires.

"6. Suitable receptacles for spitting must be provided in all factories and workshops, and one of the duties of the State Inspectors of Health is to notify the local boards of health and the State Board of Health of any failure to comply with this requirement.

"7. Spitting is prohibited, under a penalty of not more than $20, in or upon any part of any mill or factory and in certain public places and conveyances, as follows: upon any public sidewalk or upon any place used exclusively or principally by pedestrians, or, except in receptacles provided for the purpose, in or upon any part of any city or town hall, any court house or court room, any public library or museum, any church or theatre,

any lecture or music hall, any mill or factory, any hall of any tenement building occupied by five or more families; any school building, any ferryboat or steamboat, any railroad car except a smoking-car, any elevated railroad car except a smoking-car, any street railway car, any railroad or railway station or waiting room, or any track, platform or sidewalk connected therewith, and included within the limits thereof. The statute provisions permit arrest without a warrant.

B. The Duties of Householders, Physicians and Local Health Authorities

"1. If a householder knows that a person in his family is sick with tuberculosis, he is expected to notify at once the board of health of the city or town in which he lives. 2. If a physician knows that a person whom he is called to visit has tuberculosis, he must give immediate notice to the board of health. 3. If the board of health has had notice of a case of tuberculosis, it is required to notify the State Board of Health without delay, giving the name and the location of the patient.

C. Instruction in the Public Schools and Medical Inspection of School Children

"1. In accordance with a law passed in March, 1908, special instruction as to tuberculosis and its prevention must be given, as a regular branch of study in connection with the subject of physiology and hygiene, to all pupils in all schools which are supported wholly or partly by public money, ex-

MARIE LOUISE ROCHELEAU

FIRST PATIENT TO BE CURED OF TUBERCULOSIS UNDER MANUFACTURERS AND MERCHANTS' AGREEMENT

cept schools which are maintained solely for instruction in particular branches.

"2. State laws provide for the examination and diagnosis, by school physicians, of children attending the public schools. Whenever a child shows symptoms of tuberculosis, he shall be sent home and the board of health shall at once be notified. Notice of any child, known to be attending school, who shows signs of being in ill health or of suffering from infectious or contagious disease, may be brought to the attention of the State Inspector of Health in whose district the schoolhouse is located.

D. State Sanatoria for Persons Ill with Tuberculosis

"1. The Massachusetts State Sanatorium at Rutland, the first State institution of its kind in this country, provides for the treatment of persons ill with tuberculosis within the Commonwealth. The trustees and overseers of the sanatorium are warranted in giving preference to incipient cases. The sanatorium has no proper accommodations for children, so that persons under fourteen years of age are not admitted.

"2. The Legislature of 1907 provided for the construction of three new sanatoria for the treatment of persons ill with tuberculosis. Following are the sites for the buildings: (1) at North Reading, in northeastern Massachusetts; (2) at Lakeville, in southeastern Massachusetts; and (3) at Westfield, near the West Springfield line, in the Connecticut valley. Notice of any person needing to be cared for in such hospitals may be brought to the atten-

tion of the State Inspector of Health in whose district the person lives.

II. How Heads of Families and Householders May Prevent Members of the Household from Taking the Disease

"1. Whenever a member of a household is sick with tuberculosis, have the other members, especially the children, examined. Meanwhile, keep young children away from the patient and from the room or rooms in which the patient stays. Allow no nurse or caretaker who has tuberculosis of the lungs to be employed about the children.

"2. The bed-rooms are, so far as health is concerned, the most important rooms in the house. Here children spend about half their lives. These rooms should be kept clean and well aired. The windows should be opened wide several times a day. If possible, sunny rooms should be used for bed-rooms, and the windows kept partly open at night to ensure a plentiful supply of fresh air.

"3. The patient's bed linen and underclothing should be boiled, and the blankets hung out of doors on every sunny day.

"4. Because of danger from drinking cups and other dishes, you should either provide a separate set of dishes for the patient, or require the greatest care to be taken to boil all those which he has used.

"5. Carefully clean and disinfect all rooms which you are to occupy where persons with tuberculosis have been housed. Rooms should be made as bare

as possible of furnishings which cannot be easily cleaned. Handling dirty and soiled carpets imparts danger to others. Carpets should be dampened before removing them, and all dust should be kept moist. Walls and all woodwork, including floors, should be scrubbed with a hot solution of washing soda. Ceilings should be re-whitened and walls re-papered and painted.

"6. Do not occupy immediately a house in which tuberculous persons have been living, without first cleaning and properly disinfecting the house or such parts thereof as have been frequented by the sick. The germs probably do not live after six months, and some of them will be destroyed before that time.

III. How the Individual Patient May Prevent Members of his Family and Other Persons from Taking Tuberculosis

"1. When indoors, or in closed cars or vehicles, hold a piece of cloth in front of your mouth or nose every time you cough or sneeze. What you cough up may contain germs which will endanger others if inhaled or swallowed.

"2. Use a spit cup which can be properly cleaned, or paper spit cups, paper napkins or some other receptacle which can be destroyed with its contents by burning.

"3. When you have used a paper napkin either to spit in or to wipe your mouth with, fold it carefully and put it into a paper bag which you are to carry with you. Destroy the bag with its contents at your earliest opportunity.

"4. Do not let any spit get on your clothing or on anything about you, wherever you may be.

"5. Always clean your hands before handling food substances of any kind. The following case illustrates a very common danger: A woman of forty-five years had been ill with tuberculosis for eighteen months. Recently one of her three daughters, aged fifteen, was seized with the same disease. During one of her violent coughing spells the mother shielded her mouth with her right hand. Immediately upon stopping she went to the pantry, put her right arm into a bag of apples, took out three apples, polished each of them with her right hand, then passed one to each of her three children, who eagerly ate of the fruit. Not long afterward the oldest daughter was found to have the disease throughout her body, and later died at a hospital to which she and her mother were sent.

"6. Never kiss an infant or a young child. Grown persons may be kissed on the cheek, but not on the lips.

"7. Use great care not to come in contact with young children. This is especially necessary when an infant is brought up in a family where the disease prevails.

"8. Sleep alone, and, if possible, in a room by yourself.

"9. If a mother, you must not nurse your child.

IV. How Employers May Guard the Health of their Employees

"1. Factories and workshops should be well ventilated and not overcrowded. Persons who work

day after day in rooms which are impossible of ventilation may after a time lose weight and strength and become ill with tuberculosis. This is especially true of a workshop where many people work side by side, some of whom may at the time be suffering with tuberculosis of the lungs. One of the most important duties of an employer is to provide fresh air for his employees.

"2. Suitable receptacles for spitting should be provided in all factories and workshops, the number and kind depending upon various factors; e.g., the nature of the industry, the cleanliness of the establishment, the employees, etc.—conditions to be determined by the local board of health in the town or city where the factory is located. If metal receptacles are furnished, they should be half filled with water, or, better, should contain one per cent. carbolic acid, or some chlorinated lime, to prevent flies eating the spit. They should be emptied frequently into some place where the spit can positively do no harm, and should then be scrubbed with boiling or hot water containing a little carbonate of soda (washing soda). If such precautions are not taken, the spit dries, and the dried particles containing germs of tuberculosis float about in the air. Flies may carry the germs of tuberculosis if allowed to feed on spit. Should these germs get into the body, tuberculosis may result. On the other hand, the destruction of spit prevents one great means of the spread of the disease.

PERSONAL HEALTH AND HABITS

I. Suggestions to Patients

"1. All nose and throat troubles, a cough which has lasted for some time, a continued flushed face or fever, or the first indication of mouth breathing, should lead you to seek medical aid.

"2. Insist upon plenty of fresh air in the sleeping room. Have your bed in that part of the room which is exposed to an abundance of air.

"3. Open the windows in all the living rooms often. Let in the sunlight.

"4. Stay out of doors whenever you can. A balcony may be fitted up both for sitting and sleeping purposes. Children should live as much as possible in the open air, and every form of sport encouraged which tends to keep them there. A person who is ill with tuberculosis must be where he can be kept in the open air for at least several hours each day, in spite of fever or cough, although it is important that he shall be kept warm while in the open air. Sudden, unnecessary exposure to extreme changes in the weather should be avoided. When a patient is confined to bed, the largest, best-ventilated and sunniest room should be used, and a window should be open most of the time.

"5. Wear light underwear of moderate weight, and put on outside wraps according to changes in the weather. Light underwear is cheaper and better.

"6. Bathe your neck and chest, front and back, with cold water each morning. Rub the skin well

with a coarse towel. The skin should be red after the bath.

"7. Spend your money for good food rather than for medicines. Patent medicines, or proprietary preparations, or drugs of any kind, should not be taken internally without the advice or consent of a physician in good standing.

"8. Avoid fatigue. If you are working, lie down when you have a few moments to spare.

"9. Remember that many persons who have suffered with tuberculosis are now well, and that the disease is no longer regarded as incurable.

"10. If you are so ill that you cannot recover, you can gain much comfort by protecting the health of those who are near and dear to you.

II. Suggestions to the Public

"1. Well persons who persist in spitting in places prohibited by law should not forget that some of the persons who are sick with tuberculosis will see them spit and pattern after them, and in this way endanger the lives of others. It is important to acquire clean personal habits, both for the purpose of protecting one's self and others.

"2. Every one who has a cough should make an effort to cough as little as possible. By so doing he helps himself and greatly lessens the risk of making others ill.

"3. It is not at all uncommon to-day to hear of instances where the very means of obtaining one's livelihood has been taken away because the per-

son was unfortunate enough to have tuberculosis. To take away from such a person the means of obtaining his livelihood is to take it from the very person who needs it most.

"It should be remembered that a person ill with tuberculosis, whose personal habits are clean and who takes care of the material which he coughs up, is a safe person to live with, and that he may attend to his work without endangering his fellow workmen. Failure to appreciate this fact is already causing many hardships, which are both unnecessary and unjust."

NAMES OF THE STATE INSPECTORS OF HEALTH

Health District No. 1.—Dr. Charles E. Morse, Wareham.
Health District No. 2.—Dr. Adam S. MacKnight, Fall River.
Health District No. 3.—Dr. Wallace C. Keith, Brockton.
Health District No. 4. — Dr. Elliott Washburn, Taunton.
Health District No. 5.—Dr. Harry Linenthal, Boston.
Health District No. 6.—Dr. Albert P. Norris, Cambridge.
Health District No. 7.—Dr. J. William Voss, Beverly.
Health District No. 8.—Dr. William Hall Coon, Lawrence.
Health District No. 9.—Dr. Charles E. Simpson, Lowell.

Health District No. 10.—Dr. William W. Walcott, Natick.

Health District No. 11.—Dr. Melvin G. Overlock, Worcester.

Health District No. 12.—Dr. Lewis Fish, Fitchburg.

Health District No. 13.—Dr. Harvey T. Shores, Northampton.

Health District No. 14.—Dr. Herbert C. Emerson, Springfield.

Health District No. 15.—Dr. Lyman A. Jones, North Adams.

CHAPTER XII

Dangers of Overwork

The human body is simply a machine having forty-two hundred parts; it is the only machine that oils itself. The pump, or heart, in twenty-four hours exerts a force that would lift sixty-three gallons of water to the top of Bunker Hill Monument. Man's endurance is greater than that of a horse, and his body has a power of resistance which is simply wonderful. However, this self-same machine soon rebels against rough usage and so-called overwork, whether it be mental or physical, and when a crash comes, no matter how skillfully repaired, that body is never the same. Serious illness, brought on by overwork, always leaves the system in a condition more ready to be invaded by disease. Therefore, all men and women should guard carefully against putting themselves into a position where they must be told that they are "all run down." But you are going to say to me, "How can I help it? This work must be done or I must lose my place;" or if it be a mother she will say, "I cannot sit down; I cannot lie down." To you I want to point out by simply taking fifteen minutes in the afternoon and fifteen minutes in the forenoon, if more time cannot be spared, to give yourself up to perfect relaxation in the seven days

upon which you say you must work, you have gained two hundred and ten minutes—three and one-half hours. Such time is worth more to you than one whole day's rest each week.

A complete relaxation of the human body when it is tired, if only for a brief period of time, has a tonic effect upon your whole system.

How long is it going to be before men and women learn that there is only just so much in their bodies? It is not the distance, but the pace that kills. At fifty you should be in the prime of life, yet how many men and women can boast of this? How many look from the hospital bed and say, "Oh, if I had only taken more rest, if I had only been more careful I should never be in a position where, when I asked the doctor what he honestly thought of my case, he politely told me that I had no reserve strength, no reserve power."

You should act as your own conservation commissioner; you cannot burn the candle at both ends. To you women and girls who are overworking and are cognizant of the fact, I want to say to you that at the age of forty years you approach the critical point in your existence. It is for you to say whether you arrive there broken down, your nerves and muscles in no condition to stand the strain thrown upon you at that time; or whether you reach that age with a body full of strength and vigor, prepared to fight the menapause (or change of life). You know that statistics bear out the fact that at this age our asylums and sanitariums place most of their cases on record. You tell me

that this is all theory. I have tried in this book to avoid theory and dwell only on cold, hard facts, borne out by statistics, and this holds good in this chapter. Study yourself; you know what you can and cannot stand. By standing I do not mean that you should only stop working when you are willing to collapse. If you are the mother of a large family, don't think that you must sit up and work on Mary's dress until ten o'clock at night and then only stop when you are nearing collapse. Perhaps the child in the cradle looks to you for its nourishment and supper, and becomes a weakling because his mother gets too tired.

Not to overwork is a duty you owe to your husband, your children and to yourself. Of what good are you to your family after you are broken down? You cannot even enjoy your home. The most pitiful spectacle I have ever seen is a mother surrounded by plenty, too nervous to tolerate even her husband's voice—one whose health has departed and who, by reason of her surroundings, must endure the noise of little children whose innocent babble would under other circumstances be pleasant to hear.

The danger of overwork lies in not taking rest at stated intervals. Lie down after the mid-day meal, and relax yourself for thirty minutes at least. One of the best preserved women I ever saw is a patient of mine who all through her life has taken certain periods of rest every day of her life. She is a mother of three strong, healthy children. If you are unmarried the same principle holds true. Rest at stated intervals. Never mind a broken en-

gagement to meet some friend; she will enjoy your company so much better when you are rested, and soon will begin to ask you why you are looking so well. Eat right, bathe right, sleep right, care properly for the body and the teeth. Use your head many times instead of your hands, and when you reach the age of fourscore years and ten, you will look with pity upon those who wasted their lives because of overwork.

CHAPTER XIII

Walking and its Relation to Health

As a nation, Americans ride too much and walk too little. Walking is one of the very best exercises. Why? First, because it keeps one in the open air; second, because it gives ample opportunity to take lung baths and pulmonary gymnastics, thus enriching the blood and building up every tissue of the body. It makes a most perfect exercise for the muscles of the thigh, legs and back; the demand on the nerve control is small; the influence on the pulse and blood pressure and respiration is only moderate. It cultivates endurance, and the best age in which it may be practiced is from fifteen to sixty-five years; the gait should be from two to four miles an hour.

English women are great walkers and they are noted for their erect carriage and power of endurance. The man who works all day at his desk in an office, and then stands for twenty minutes waiting for a street car is not only losing valuable time, but forming a habit hard to break. The same is true of women who follow a clerical life. Closed up, as it were, for seven or eight hours a day, they come out upon the street, wait ten or fifteen minutes, sometimes longer, for a car and then get into

a poorly ventilated vehicle, with thirty or forty other people, and breathe a vitiated atmosphere for the next half hour—an atmosphere many times contaminated by germs of different kinds. The muscles, which all day have been inactive, are still kept at rest when they should be having proper exercise. Walking four miles a day, walking right, will do much to build up not only the muscular but the nervous system as well. In walking, one should walk properly if one would get the most out of it and be benefited thereby. Stand erect, lift the head from the chest, throw back the shoulders, and at the same time cultivate an easy swinging stride; keep the mouth closed, and breathe entirely through the nose. As you are walking, easily fill the lungs with fresh air, and then exhale slowly.

A physician, a friend of mine, who was troubled with bronchitis and asthma, gave up riding either in the cars or in his carriage and followed out the rules laid down above. Within one year he increased the expansion of his chest more than three inches and had gotten rid of his asthma and bronchitis; built up his muscular system and rid himself of his nervousness.

Walks taken in the early morning before breakfast have a tendency to increase the appetite and to relieve constipation. Yes, as a nation we walk too little, thereby losing the opportunity many times of breathing fresh air which carries oxygen to all the tissues of the body.

In writing this chapter I cannot be called a faddist, for the testimony of those who have made it

a point to walk a good deal all through life bear testimony to its value.

One other point in walking and then I will leave the subject for your trial and careful consideration: There are in the apex or upper portion of the lungs, a large number of unused cells which are never brought into play and do not contribute towards carrying oxygen to the body. By walking and breathing properly these lung cells will be developed, thereby giving you more breathing space, also a well-developed chest. I can point out to you many hale and hearty old men and women and you will invariably find that they have been addicted to the habit of walking all their lives.

CHAPTER XIV

Prevention of Disease Among Those who Follow Different Occupations

In this chapter, in a work of this size, I can touch but lightly upon the question of preventing disease among those in various occupations. The occupations which I have selected are the ones in which consumption occurs most frequently. I shall outline a few salient points that appear to me to be important in the prevention of this disease.

PRINTERS

I have selected this class and occupation first, not because the mortality is highest among printers, but because recently 203 printers working in different offices volunteered to take a physical examination, which was made by Dr. Miller of New York. One hundred and forty-nine, or nearly three-fourths, were born in the United States; the majority of the others were either English or Scotch; one hundred thirty-seven were married, and as to age, forty-eight were between 20 and 30; eighty-nine between 30 and 40; fifty between 40 and 50; sixteen between 50 and 60.

Present physical condition: Thirty-one per cent. were found to be normal. Catarrh of the upper

air passages was found in 57 cases; chronic pharyngitis, 14; chronic rhino pharyngitis (these last two being disease of the mucous membrane of the nose and throat) and chronic rhinitis, 22 (this is a disease of the mucous membrane of the nose); chronic laryngitis, 1; hypertrophied tonsils, 5; adenoids, 2; bronchitis, 11; pulmonary emphysema, 8; pleurisy, 33; pulmonary tuberculosis, 34. The result of this examination tends to show that consumption is very frequent among printers; that printers are very subject to catarrh; that disturbance of digestion is frequent and probably plays an important part in determining the health of the trade. Irregular habits of living in general, among printers, are a contributing cause, as is the use of alcohol. Becoming rapidly chilled by open windows and then running out of doors, is responsible for many sudden colds that predispose to catarrhal diseases. A few simple rules strictly adhered to would go a long way towards warding off many of the troubles found to exist.

First, avoidance of alcohol; second, bolting food and a longer period for lunch; attention to the nostrils by the use of a douche used before and after the day's work; attention to the bowels, avoiding constipation always. Nearly every State now has laws looking towards proper ventilation of printing offices. Be careful about your sputum and see that those around do the same; open your windows when in bed, either through the day or night; follow the system of exercises for breathing laid down in this work, which are simple; eat plain, easily digestible food; pay especial attention to

bathing. Leave cigarettes alone; avoid excesses in all things, and the high mortality which exists at the present time among those who follow this most honorable calling will be materially reduced.

Since beginning this chapter I have learned that the National Typographical Union is perfecting plans looking towards the establishment of a sanitarium for incipient tuberculosis among its members. This of course is a great step forward, and as it is the leader in this great work, I trust that other organizations will soon follow its example.

DANGER TO GRINDERS AND POLISHERS

It is unnecessary for me to say to you that your occupation places you in a position where there is a constant inhalation of fine dust. This irritates the throat and small tubes known as bronchial tubes, causing the mucous membrane to be sensitive and easily inflamed. You know, also, that although State laws, in nearly every State, protect you by forcing manufacturers to provide hoods and suction pipe for all who work on buffing, yet there are other preventive measures that might be employed by you, as, for instance, a sponge properly cut and shaped to the nose and coming down over the mouth should be worn. This kept moist could be worn without much inconvenience. Then there is a little shield made to fit the nostrils, which lasts for a long time, that may be worn which will prevent a large portion of the dust from being inhaled. There are simple preventive measures which you

can easily follow; in addition to this, you should take care of the nose and throat. A simple douche for the nose with a Sieler's tablet, morning and night, will keep the nose and throat in a healthy condition. Another important thing, and perhaps the most important, is the care of the stomach and bowels. The avoidance of fast eating, the care of the teeth, the watching for an overcrowded condition of the stomach, all tend to keeping the mucous membrane of the nose and throat in a healthy condition. Many people only have sore throat and catarrh when they have disordered digestion. Especial attention to the proper amount of fresh air in your sleeping-room tends to build up your resisting power against disease. Asthma is often caused by an over-accumulation of acid in the system.

STONE AND MARBLE CUTTERS

The mortality from consumption and pneumonia in your trades is high, and as I watch you work and inhale dust, I do not wonder that it is so. I find very few making any attempt at all to shield the nose and throat from the particles of fine dust while at work. Some of you wear a sponge fitted to the nose, but most of you wear nothing at all. A simple arrangement made with a piece of wire for a frame, the nose covered with a piece of cheese-cloth, inside of which a piece of absorbent cotton is placed, would do much towards arresting the dust which finds its way first into the nasal passages and then into the throat and bronchial tubes,

and in many cases into the lungs. Fine particles of dust are often found in the lung when an autopsy is made. Look to your general health; avoid intemperance in both eating and drinking, and pay especial attention to the bathing. Keep the mouth clean, remove all decayed teeth as soon as found; do not neglect a cold. If you find yourself getting tired take a few days' absolute relaxation. Take regular breathing exercise as outlined in the chapter on breathing in this book, and you will stand a much better chance of escaping not only tuberculosis, but pneumonia and other diseases of the throat and lungs to which your occupation predisposes.

WEAVERS

Our industrial civilization has produced a large army of weavers, not only in this country, but in all countries, and history has shown that wherever you find people engaged in this occupation you find consumption. Why is this so? First, because in the past many of the factories were poorly ventilated, usually overheated; that the removal of dust was inefficient. In many instances there were conditions over which the operative had no control and the operatives themselves have been careless in many ways: first, because they excluded fresh air from the room in which they worked, and, second, because they slept with windows closed; third, because they failed to take lung baths and did not pay particular attention to the care of the body, where exercise and bathing were concerned.

Now that laws are in force in most states for the removal of dust, for pure drinking water, seats for women, proper ventilation, proper toilets, proper light, you should keep well. If you would maintain your health follow these rules:

First: Eat to moderation; don't overload your stomach; don't bolt your food; do not drink with your meals. Second: Keep your mouth and teeth clean; sleep with windows open; keep in open air as much as possible; avoid alcoholic stimulants; avoid patent medicines; take plenty of time for rest. Young girls, avoid the dance hall, particularly after 11 p.m. Learn to breathe properly, to take proper and systematic exercise; make the best of your surroundings, let the sunlight into your home, spend your money for fruits rather than candies. Keep the feet dry, particularly at your monthly periods.

For men: Don't bundle the chest, but keep feet dry; select the places you are to live in with care and then keep them clean and sweet; remember that sunlight and fresh air are the two great foes of disease. If you follow this chapter closely you will be surprised at the change brought about in your physical condition, even in the short period of one year, and none of the things asked of you are impossible or hardships.

In conclusion, I desire to say to all factory workers: Don't be afraid of fresh air; let it into your workroom; let it into your homes. Pay especial attention to your stomach; avoid eating cheap candies; avoid patent medicines; avoid worry; avoid late hours. The present system of long hours will

soon be changed, everything pertaining to the sanitation of the workshop, factory and store is rapidly undergoing a change for the better, and as fast as your employer makes changes for bettering your condition while at work, take the lessons of sanitation home with you and see that they are applied in your home as well as in your factory.

CHAPTER XV

How to Live a Hundred Years

> Against diseases known, the strongest fence
> Is the defensive virtue, abstinence.
>
> —Benjamin Franklin.

"If any man can convince me and bring home to me that I do not think or act aright, gladly will I change; for I search after truth, by which man never yet was harmed. But he is harmed who abideth on still in his deception and ignorance.

"Do not think that what is hard for thee to master is impossible for man; but if a thing is possible and proper to man, deem it attainable by thee.

"Persevere, then, until thou shalt have made these things thine own.

"Like a mariner who has doubled the promontory, thou wilt find calm, everything stable, and a waveless bay.

"Divine sobriety, pleasing to God, the friend of nature, the daughter of reason, the sister of virtue, the companion of temperate living; modest, agreeable, contented with little, orderly and refined in all her operations! From her, as from a root, spring life, health, cheerfulness, industry, studiousness, and all those actions which are worthy of a true and noble soul. From her presence flee, as so

many clouds from the sunshine, reveling, disorders, gluttony, excessive humors, indispositions, fevers, pain, and the dangers of death. Her beauty attracts every noble mind. Her security promises to all her followers a graceful and enduring life."

Louis Cornaro, a great Venetian sanitarian, said, on reaching his ninety-fifth year: "I find myself, in spite of my great age, healthy, strong, contented and happy; and that I continually praise the Divine Majesty for so much favor conferred upon me. Moreover, in the generality of other old men whom I see, no sooner have they arrived at the age of seventy than they are ailing and devoid of strength; melancholy; and continually occupied with the thought of death. They fear, from day to day, that their last hour will come; so much so, that it is impossible for anything to relieve their minds of that dread. For my part, I do not experience the least trouble at the idea of death; for as I shall later on explain more clearly, I cannot bring myself to give it so much as a thought."

He further says: "Health in the body is like peace in the state and serenity in the air. Health is the soul that animates all enjoyments of life, which fade and are tasteless, if not dead, without it. A man starves at the best and the greatest tables, and is poor and wretched in the midst of the greatest treasures and fortunes. With common diseases, strength grows decrepit; youth loses all vigor, and beauty all charms; music grows harsh, and conversation disagreeable; palaces are prisons, or of equal confinement; riches are useless; honor and attendance are cumbersome; and crowns them-

selves are a burden. The vigor of the mind decays with that of the body, and not only humor and invention, but even judgment and resolution change and languish with ill constitution of body and of health; and, by this means, public business comes to suffer by private infirmities, and kingdoms or states fall into weaknesses and distempers or decays of those persons that manage them. I have seen the counsels of a noble country grow bold or timorous, according to the fits of his good or ill health that managed them; and the pulse of the government beat high and low with that of the governor. Thus, accidents of health grow to be accidents of state; and public constitutions come to depend, in a great measure, upon those of particular men.

"Health and long life are usually blessings of the poor, not of the rich; and the fruits of temperance, rather than of luxury and excess. And, indeed, if a rich man does not, in many things, live like a poor man, he will certainly be the worse for his riches; if he does not use exercise, which is but voluntary labor; if he does not restrain appetite by choice, as the other does by necessity; if he does not practice sometimes even abstinence and fasting, which is the last extreme of want and poverty. If his cares and his troubles increase with his riches, or his passions with his pleasures, he will certainly impair in health whilst he improves his fortunes, and lose more than he gains by the bargain; since health is the best of all human possessions, and without which the rest are not relished or kindly enjoyed."

Samuel Johnson says: "Health is, indeed, so necessary to all the duties as well as pleasures of life, that the crime of squandering it is equal to the folly; and he that for a short gratification brings weakness and diseases upon himself, and for the pleasure of a few years passed in the tumults of diversion and clamors of merriment condemns the maturer and more experienced part of his life to the chamber and couch, may be justly reproached, not only as a spendthrift of his happiness, but as a robber of the public; as a wretch that has voluntarily disqualified himself for the business of his station, and refused that part which Providence assigns him in the general task of human nature."

The words of Cornaro, given above, were written in the middle of the fifteenth century. It will be noted that the writer was born a weakling, yet at forty years he determined to live to be a hundred. How well he succeeded is proven by the fact that he lived to be 102 years of age and then passed away like one falling asleep. The one thing that people advanced in years will not consider, is that a man's once a man and twice a child. As we begin to age in point of years all our muscles age; the stomach, which is a muscle, grows weaker in its action, it digests your food by a churning motion, and by the movement of one coat upon the other, and depends upon the elastic condition of the stomach cells for its power as a digestive organ.

As you reach the noonday of your life and begin the descent of the hill on the downward grade, if you would reach the bottom, which means ripe old age, you must at once begin to be careful, lest you

slip and fall by the wayside. You will ask me this question, "How shall I live?" Naturally enough you expect me to answer this question.

First of all, then, you must avoid dissipation in both eating and drinking, and dissipation after fifty years applies in many ways. Don't think because you have always eaten everything, as you say, that you can continue to do so; don't think because you have been in the habit of remaining up until eleven o'clock that you can still continue. If you do you are burning the candle at both ends. When someone tells you, "Oh, go ahead, do the same as you always did and use a little stimulant," this is all wrong and only shortens your life.

Diet in old age is the keynote to the whole situation. Like a baby you do not need the food you used to take, you cannot take care of it, you will not digest it; you will only clog the stomach and bowels with food that has not been digested. This means repeated attacks of indigestion and biliousness, which after fifty or sixty are both weakening and dangerous. Reason with yourself; don't have a horror of growing old, for if you grow old right, you have many pleasures in store for you. Live right so that you may be an example to your children and grandchildren. Be proud of the remarks, "you are a hale and hearty old man or woman," "as bright as a button," and as active mentally as you ever were. Pay the same attention to bathing, to breathing, to sleeping and to exercise that you did in your youth, and you will be surprised to find the change it will bring about in your physical being. Of course, the exercise must be graduated,

to suit your declining years. Time after time you will hear the expression, "There is no fool like an old fool;" that means that after you reach the age of sixty, you often do the very things which you know hurt you. This is particularly true of eating, drinking and sleeping. Again, by the time you have reached the ages of fifty or fifty-five, that old axiom, "Know thyself," must be put into action. Remember one thing: you cannot eat, sleep, keep late hours, subject yourself to the mental and physical strain that you did when you were younger. Take fifteen minutes each day and give it up to intelligent thought about the care of your bodily health and you will be surprised to learn how much you can gain in so doing. Reason with yourself and allow yourself to be reasoned with.

Every few months have your physician look you over, examine your urine, give you a little painstaking advice, which you should closely follow. Live for others as well as for yourself; remember that you are not the last of your race. If you are blessed abundantly with this world's goods, spend a portion of it in carrying light and sunshine into some home darkened by misfortune and poverty. Try in your declining years to do your part in lifting up the fallen, don't crowd your fellow men, be charitable to those who err. Remember that the young woman of to-day is surrounded by an entirely different atmosphere from that of your girlhood, that the young man is beset by temptation which in your time did not exist. Cultivate a cheerful disposition and make the best of your surroundings; read books pertaining to health mat-

ters, look on the sunny side always, and in the end you will be blessed as was Louis Cornaro, away back in the fifteenth century, with a blessed and happy old age, and when you pass away leave footprints on the sands of time that will be eagerly sought by those who follow you.

CHAPTER XVI

Conservation of the Nation's Health

People have got to learn to be their own doctors as far as the care and protection of their health are concerned. Each family must learn to eat and drink properly, ventilate their homes, breathe and dress properly,—in general to give more intelligent and careful thought to these essential conditions that are so necessary to keep the tone of their bodies in good condition, so as to be able to resist the germs of disease that attack them. This should be done if we would help to relieve ourselves and all others from dreaded disease. Who can be so unpatriotic, indifferent or unintelligent as not to be willing to make such self-denials as are necessary?

From the lowest form of life to man, the essential conditions of life and health have been few and plain. Through all the ages of that slow ascent, but with varying emphasis, these have been: food, air, sunshine and exercise. Upon a supply of these in proper kinds and amount, depends the health of every man, woman and child in the universe.

Hospitals, sanitariums, class-teaching and clinics are small schools in which *hygiene* is taught. At the present time this teaching is the most potent, in fact the only course which is given strictly re-

lating to health matters. Our medical colleges of to-day teach how to cure disease, but are neglecting the most important branch, that of preventive medicine and personal hygiene. A ray of sunshine, however, appears on the horizon when we are told that three universities have adopted courses in personal hygiene and preventive medicine.

The time is fast approaching when in our industrial centres, state and municipal functions will provide living-quarters which will allow you to maintain your physical health.

Today, in many instances, it is certain that the earning capacity of our wage-earners and the purchasing power of their earnings are weakened by unsuitable housing. While most landlords are considerate and humane, yet there are too many who care not how their tenants exist, providing they pay their rent. It is for this class of property holders legislation is needed. Those of you who must live in this class of houses are in no position to resist. I believe the time is not far distant when a minimum condition will be established which will be legal for light and air-space per capita, with proper toilet accommodations.

New York, to her glory, has a law applying not only to new houses in process of construction, but for the inspection of those already occupied. The landlord protects himself against the loss of rent; you must be protected against the loss of your health.

When our physicians are better educated in sanitation; when your pastor takes an interest in your home surroundings; when the present awakened

conscience begins to speak to the people through your best friend, the public press,—then those whom you send to the Legislature and the Congress to make your laws will become interested in your welfare, as they should be. It will become your duty then, even more than now, to fulfill your part of your most solemn obligation—duty to yourself and to those around you by making use of the knowledge being imparted to you relative to your personal and bodily health. But while you are waiting for this to take place remember that consumption is rampant, and only comparatively few who contract it can now gain admission to a sanitarium. Therefore, make the best of your surroundings.

Like a mighty wave sweeping over our country, today the great question of a better national health is surging. The press is heralding truth and scientific knowledge; the public is following in line. Wise State laws willingly lived up to in our manufacturing and commercial institutions are fast making for better health conditions everywhere.

CHAPTER XVII

The Working Day

The present working day, from a physiological standpoint, is too long, and keeps the majority of bread-winners in a continual state of over-fatigue. It starts a vicious circle, leading to the craving of means for deadening fatigue, thus inducing drunkenness and other excesses. Experiments in shortening the working day show a great improvement in the physical efficiency of laborers, and in many cases result in even increasing their output sufficiently to compensate the employer for the shorter day. Several examples of such a result exist, but the real justification for a shorter work day is in the interest of the race. One company, which keeps its factory going night and day, found, on changing from two shifts of twelve hours each to three shifts of eight hours each, that the efficiency of the men gradually increased, and the days lost per man by illness fell from seven and one-half to five and one-half per year. Public safety requires, in order to avoid railway collisions and other accidents, the prevention of long hours, lack of sleep, and undue fatigue in workmen.

THE IMPORTANCE OF PREVENTING UNDUE FATIGUE

The economic waste from undue fatigue is probably much greater than the waste from serious illness. This is because the number of fatigued persons is great enough to more than outweigh the fact that the incapacitation from fatigue is relatively small. Moreover, the relatively slight impairment of efficiency due to over-fatigue leads to greater impairment from serious illness. A typical succession of events is, first, fatigue, then "colds," then tuberculosis, then death. The prevention of undue fatigue means the arrest at the start of this accelerating chain of calamities.

The Solvay Process Company, of Syracuse, installed in 1892 a system of three eight-hour shifts in place of the two previous shifts of eleven and thirteen hours, respectively. It was stated by the assistant general manager, in 1905, that the change had considerably lessened the wear and tear on the men, and that they could be called on to do their work at their highest state of efficiency, which had not been possible on the two-shift basis. President Hazard of the company writes:—

"In general, I can say that the results of the change from a twelve-hour shift to an eight-hour shift were very satisfactory and have continued to be so. While the immediate result was to increase considerably the cost per unit of product, the efficiency of the men gradually increased, so that at the end of about one year, the first increase has been overcome, and the cost per unit of product fell to a point even lower than had been obtained under the twelve-hour shift, and further, the time consumed per unit of product has since been so reduced that we are to-day, and

for some time have been, operating with a smaller number of hours per unit of product than we had under the twelve-hour shift."

Further proof of the benefits of the change to the three-shift day is furnished by the records of the Solvay Mutual Benefit Association for 1891 and 1904. The days lost per man by sickness each year fell from seven and one-half days in 1891 to five and one-half days in 1904.

CHAPTER XVIII

Hygiene

STATE HYGIENE

The regulation of the labor of women and children is usually a state matter. It has been suggested by Dr. Stiles that every woman should be allowed once a month to leave a factory without being asked questions or losing wages. The employment of mothers before and after childbirth should be prohibited, as it is now in a number of European countries. This single reform would help greatly to conserve the vitality of the next generation. Child labor in the South is in many cases the lesser of two evils; the other being exposure to the hook-worm disease on polluted farms. In these cases the abolition of child labor should be preceded by the abolition of hook-worm disease. Hours of labor have been steadily decreasing, and should be decreased further. Accidents are unnecessarily frequent on our American railroads, as well as in industrial establishments. Statistics do not exist for the latter. Special trades have special dangers. Among such trades are those using lead and other dangerous poisonous chemicals, as well as the dust-producing trades, which tend to pulmonary troubles. The dark room tenements are a

common means in our large cities of depleting national vitality.

FEDERAL HYGIENE

This includes quarantine, the inspection of immigrants, and exclusion of those with infectious diseases, administration of government hospitals, of pure-food laws and meat inspection, and coöperation with State boards of health in fighting yellow fever, bubonic plague, etc. Federal power needs extension, however. Our interstate railroads should be improved in respect to the sanitation of sleeping-cars, smoking-cars, etc.

The movement to secure a more intelligent national organization of health has found expression in the platforms of both political parties. What is needed is that the Federal Government should make the national capital a model of sanitation, should provide for more investigation in health matters and the dissemination of information on the prevention of tuberculosis, etc., should coöperate further with state and municipal authorities, and should check the pollution of interstate streams and prevent the transmission of disease-bearing meats, or other food, from one State to another. Lastly, it should secure, through whatever constitutional means exist, some method of collecting statistical information as to our national mortality and morbidity. Our shortcomings in this respect are now a national disgrace. There is no accurate record of births in any part of the United States, and that of deaths includes less than half our pop-

ulation. As a statistician has said of one of the states, "It buries its dead people with no more ceremony than it buries its dead dogs." Obviously, no intelligent control of epidemics and other diseases can be secured unless the facts in regard to those diseases are known; in other words, unless there exist mortality and morbidity statistics of real value.

SEMI-PUBLIC HYGIENE, MEDICAL RESEARCH AND INSTRUCTION

Semi-public hygiene comprises that relating to institutions and the medical profession. The hygiene of the future must depend more on discoveries in preventive medicine than on any other single factor, and institutions, such as the Pasteur Institute, the Rockefeller and Carnegie institutes, and the research laboratories of the government and universities offer the most promising means of increasing this most useful and practical of all human knowledge. The knowledge is dispensed through medical schools in the training of physicians. These schools are improving so as to introduce more of hygiene and preventive medicine. We are still far, however, from having facilities for training public health officers, or giving them such a degree as D.P.H. (diploma of public health), as is given in England.

The efficiency of Japanese hygiene was shown in the fact that General Oku's army of 75,000, during the recent Russo-Japanese war, had but 187 typhoid fever cases in a seven months' active cam-

paign. The Japanese reduced their dysentery cases from 112,052 in the Chinese war to 6624 in the Russian war; their cholera cases from 7667 to none; and their malaria cases from 41,734 to 1257. This in spite of the fact that their army in the Russian war was three times the size of that employed in the Chinese war.

As to exercise, a healthy organism must call into play every function daily, both mental and physical. One of the evils of the division of labor which civilization has brought is that the sedentary worker does not have enough physical exercise, but too much mental exercise; while the situation is just the opposite in the case of the workingman.

A well-known physical director, now nearly 50 years old, writes me that he has this year taken up systematic physical training, which he has neglected for several years because of pressure of work. As a result, his weight has risen, his chest and arm girths have increased, while his waist girth has decreased, and he is conscious of decided improvement in memory and in sleep. This instance is cited as an example of the physical development possible in a man of middle age.

In its bearing on exercise, the growth of modern athletics and its effects on the physical ideals of men and women are to be welcomed. The revival of the Olympian games and the spread of popular participation in such outdoor sports as golf, tennis, boating and horse-back riding have all had their share in building up a new health ideal. Thus we are getting away from the mediæval idea of mortification of the flesh and approaching more closely

the Greek conception of a beautiful body as the covering for a beautiful soul. The Greeks lifted their sports to a higher level than ours by surrounding them with imagination and making them a training in æsthetics as well as in physical excellence. The American idea is at present too closely connected with mere winning, and not enough with development. In the past the physical athlete has been too much associated with the pugilist, and has been looked down upon as having merely brute strength. The intellectual type, on the other hand, has been content wholly to neglect bodily development.

In the last three years considerable evidence has accumulated to show that the sitting posture of the sedentary man tends, sooner or later, to produce nervous prostration, and that the ordinary chair invites to this effect by producing a bent attitude, both in the forward direction and in the shoulders. The effect of the former is to tax the splanchnic nerves and congest the portal circulation. The splanchnic area, which is enormous, is a sort of overflow tank for the blood. If the muscles of this area are allowed to relax through improper position in standing or sitting, the result is the stagnation of the blood in the abdomen, and this in turn results in a vicious circle of evil effects. Since much of our life is spent in chairs, this fact is of no small importance. Improperly made school chairs and unhygienic habits of sitting in them may start off millions of young lives with round shoulders, curved spines, and the later effects of portal congestion.

Exercise of mind does not simply mean exercise of intellect. The emotions and the will are equally a part of a well-developed, healthy man. Late in life Darwin had occasion to lament the fact that his emotional capacity had become cramped because he had exercised his mind in his own branch of work to the exclusion of other things. Whatever our ideas of theology or religion are, it is true that we all ought to have a spiritual sense. Some men lack this spiritual sense and are incapable of understanding the spiritual experience of others. "For toil without purposeful and occupied leisure is unfilled purpose, a process arrested midway." Worry and fear are unhealthy. Hope, courage, enjoyment, and an optimistic attitude generally, are healthy.

The ordinary workingman works two or three hours too much every day. Nearly every man overworks himself, takes insufficient rest and recreation, and worst of all, cuts off his normal portion of sleep. Fatigue ought to be "avoided like poison," because, physiologically, it is really poison. Worry, fear and anger also produce poisons harmful to the human body. This is suggested at least by the effect upon a nursing infant of violent paroxysms of anger, or periods of intense fear or anxiety on the part of its mother. The intense exhaustion which follows such paroxysms is another case in point.

An animal lives a much more healthy life than the average man, because an animal follows instinct, while a man, to a large extent, endeavors to substitute for his instincts rules which are very often false. One of the instincts constantly dis-

regarded by man is that which finds its expression in fatigue. The ordinary man working for some one else is compelled to toil beyond the fatigue limit; and, on the other hand, if a man is in business for himself, he does the same thing of his own will. Although no one knows what sleep is, it serves, according to the best theory, to eliminate poisons and to rebuild tissue. With rest is closely associated recreation. Play practices the power of a child's mind, while contact among children develops self-control. Similarly, adults are rested by play or recreation, their minds and bodies are relaxed, while their contests of mimic warfare develop their powers of will and effort.

THE LENGTH OF LIFE VERSUS MORTALITY

By those who have never considered the problem, death and disease are accepted as a matter of course. In individual cases it is recognized that a death or an illness might have been prevented, but the idea that the death rate could be changed in an appreciable degree, or controlled, is quite foreign to the mind of the average man. Charles Babbage wrote: "There are few things less subject to fluctuation than the average duration of life of a multitude of individuals."

If this statement were correct, we should find the average duration of life and the death rate substantially the same in different places and at different times. The facts do not conform to this view. Modern life tables show that the average length of life in the leading countries of the world varies remarkably, as the following figures will illustrate:

MODERN DURATION OF LIFE

Country.	Males.	Females.
Sweden, 1891-1900,	50.9	53.6
Denmark, 1895-1900,	50.2	53.2
France, 1898-1903,	45.7	49.1
England and Wales, 1891-1900,	44.1	47.7
United States (Massachusetts), 1893-1897,	44.1	46.6
Italy, 1899-1902,	42.8	43.1
Prussia, 1891-1900,	41.0	44.5
India, 1901,	23.0	24.0

When we consider that the average duration of life in India is scarcely more than one-half that of France and less than one-half that of Sweden, we must conclude that the length of human life is dependent on definite conditions and can be increased or diminished by a modification of those conditions.

AVERAGE DURATION OF LIFE AT DIFFERENT PERIODS

Striking corroboration of this conclusion is found as soon as we compare the average duration of life at different periods of time. The earliest attempt to discover a law of human mortality appears to be that of Ulpian, a Roman prætorian prefect, about 220 A. D. The meaning of his table is somewhat doubtful, but it is assumed to refer to "expectation of life," which for ages up to 20 is given as thirty years. This estimate is so crude and vague as to be of little value for comparative purposes. Professor Finkelnburg, of Bonn, estimates that the average length of human life in the sixteenth century was only between eighteen and twenty years, and that at the close of the eighteenth century it

was a little over thirty years, while today it is between thirty-eight and forty years.

In Geneva the records go back over three centuries, showing the following life span:

16th century,	21.2
17th century,	25.7
18th century,	33.6
1801-1883,	39.7

Here we see an increase in the span of life of 100 per cent. in three or four centuries. The last few decades, moreover, tell a striking story of increase. It is one of the boasts of the nineteenth century that the splendid medical and scientific advances of that period have aided in a distinct lengthening of life.

In 1693 the British Government borrowed money by selling annuities, and in 1790, a century later, it did the same thing. While the first venture proved satisfactory, the second caused a great loss to the government, owing to the improvement in longevity, which had taken place, and which was estimated, for the annuitant class, at 20 years.

If we compare Ogle's English life tables for 1871-1881 with those of Farr for 1838-1854, we find an increase in life span of 1.4 years for males and 2.8 for females. A still greater improvement has been effected since Ogle's figures of 1871-1881:

Lifetime in England and Wales:

Males—	
1838-1854,	39.9
1891-1900,	44.1

Females—

1838-1854,	41.8
1891-1900,	47.8

Similar improvements are observable in other countries.

Lifetime in France:

Males—

1817-1831,	38.3
1898-1903,	45.7

Females—

1817-1831,	40.8
1898-1903,	49.1

Lifetime in Prussia:

Males—

1867-1877,	35.3
1891-1900,	41.1

Females—

1867-1877,	37.9
1891-1900,	44.6

Lifetime in Denmark:

Males—

1835-1844,	44.6
1895-1900,	50.2

Females—

1835-1844,	44.7
1895-1900,	53.2

Lifetime in Sweden:

Males—

1816-1840,	39.5
1891-1900,	50.9

Females—

1816-1840,	43.5
1891-1900,	53.6

It is difficult to obtain American life tables that go far enough back into history to display increases in the life span similar to those just presented; yet

comparisons of Abbott's Massachusetts life tables for 1893-1897 with Elliott's Massachusetts tables for 1855, and Wigglesworth's Massachusetts and New Hampshire life tables of a century ago, give us a progressive increase from 35 in 1789 to 40 in 1855, and 45 in 1893-1897. Unfortunately no tables exist for the United States as a whole from which similar comparisons might be made. Good and reliable vital statistics are among our most crying needs. Meech's life tables, based on the census figures of 1830, 1840, 1850 and 1860, showed a life span, for the whole country, of 42.

The census of 1880 gave some 70 sets of life tables for different registration states and cities. The expectation of life for white males was given for Massachusetts as 44, New Jersey 46, District of Columbia 41, and New York city 33; but in constructing the tables "the census was too prodigal as to quantity and somewhat careless as to quality. It is difficult to separate the wheat from the chaff. The table should have been accompanied by a running criticism. The general defect was that no attempt was made to correct the deficiencies in the returns for infants." The census for 1890 gives only a few life tables, and that for 1900 none.

In striking contrast to these recent increases of the life span in progressive countries is the table for backward India, which showed no advance in twenty years:

Lifetime in India:

Males—	
1881,	23.7
1901,	23.6

MORTALITY IN VARIOUS REGIONS

Forty years ago the variations in the death rates of the different sections of Europe were given, by Quetelet, as follows:

DEATH RATE PER 1000 OF POPULATION

Northern Europe,	24.3
Central Europe,	24.5
Southern Europe,	29.7

Today the death rates of various countries compare with each other, as in the following table:

MODERN DEATH RATES PER 1000 OF POPULATION

Denmark (1906),	13.5
Sweden (1906),	14.4
England and Wales (1906),	15.4
United States (registration area, 1907),	16.5
Germany (1905),	19.8
France (1906),	29.8
Italy (1906),	20.8
Japan (1905),	21.9
India (males, 1901),	42.3

As we have found in the study of duration of life, so we find here wide variations from country to country. Italy presents a death rate larger by nearly one-sixth than that of the United States, while famine-tortured and plague-ridden India's mortality rate is twice that of France and three times the rates of Denmark and of Sweden. Even the fairly homogeneous population of our registration states in America shows variations in death rates as follows:

DEATH RATE PER 1000 OF POPULATION IN 1900

Michigan,	13.9
Vermont,	17.0
Massachusetts,	17.7
New York,	17.9

The death rate in Michigan, at the one extreme, is thus but three-fourths that of New York, at the other extreme. This difference may probably be accounted for in part by the difference in the age constitution, as the population of Michigan contains a larger proportion in young and vigorous life than New York.

Comparison of urban and rural death rates also give us variations:

URBAN AND RURAL MORTALITY—DEATH RATE PER 1000 OF POPULATION IN 1900

Massachusetts:	
Urban,	17.9
Rural,	17.1
Michigan:	
Urban,	15.3
Rural,	13.3
New Jersey:	
Urban,	18.8
Rural,	15.5

Interesting comparisons may be made of the death rates of American cities varying in size and location. The death rate per 1000 of population, in 1906, was given as 14.2 (probably incorrect) in Chicago, in Boston 18.9, in New York 18.6, and in Philadelphia 19.3. Cleveland, Ohio, was credited

with a death rate of but 16, while Cincinnati, in the same State, had 20.8. The causes of such differences are not always attributable to variations in size. New Haven, for instance, a larger Connecticut city than either Hartford or New London, had a lower death rate in 1900 by 2.2 and 2.5, respectively, per 1000 population. The differences are accounted for partly by differences in age, constitution, partly—it is unfortunately true—by differences in the accuracy of the collected statistics; partly by differences in size and location, and partly by differences in the vigilance of the public and private health authorities.

European cities show even greater variations in mortality than these just given for the United States.

DEATH RATES OF EUROPEAN CITIES PER 1000 POPULATION (1897)

Locality.	High.	Locality.	Low.
Dublin,	39.9	Frankfort-on-the-Main,	15.6
Moscow,	36.9	The Hague,	16.2
Belfast,	31.3	Berlin,	17
St. Petersburg,	31	Amsterdam,	17.8

RACE AND CONDITION

The variations in death rates among different races are well known. The black race, for example, always suffers a higher mortality than the white. In Boston, during the half century from 1725 to 1774, the death rate per 1000 is given as ranging from 56 to 87 for the blacks and only from 30 to

41 for the whites. Thus the maximum white death rate was lower than the minimum black death rate. In 1906 the death rate per 1000 in all registration cities having not less than 10 per cent. colored inhabitants was 17.2 for whites and 28.1 for blacks. These racial differences may be ascribed in part to different habits and conditions in life, but probably in part, also, to varying racial susceptibility to disease.

The relation of social status to the rate of mortality has been often discussed and offers a partial explanation of racial or national variation of death rate. That a well-to-do class, properly fed and clothed, and with opportunity for leisure, will be less susceptible to disease and death than a poverty-stricken class, ill-fed and overworked, has been repeatedly shown by statistics. Newsholme has shown, for example, that in Glasgow the death rate among tenants of large houses is much lower than among the tenants of smaller dwellings:

	One and two room houses.	Three and four room houses.	Five rooms and over.
Death rate per 1000 occupants in 1885,	27.7	19.5	11.2

In Paris comparison has been made between two quarters known to be rich, on the one hand, and, on the other, a third quarter known to be poor:

DEATH RATE PER 1000 POPULATION

Rich quarters:	
Elysée,	13.4
Opera,	16.2
Poor quarter:	
Menilmontant,	31.3

In Russia a similar comparison has been made between peasants who own no land, those who own less than 13½ acres, those who own between 13½ and 40½ acres, and so on up the scale of proprietorship. The tables for one province follow:

PRESENT DEATH RATE PER 1000, GOVERNMENT OF VORONEZH (1889-1891)

Class of Household.	Per 1000.
Having no land,	34.7
Having less than 13.5 acres,	32.7
Having 13.5 and less than 40.5 acres,	30.1
Having 40.5 and less than 67.5 acres,	25.4
Having 67.5 and less than 135 acres,	23.1
Having more than 135 acres.	19.2

Occupational comparisons are often made; and while they must be handled with great care, especially because of differences in age, the following may be said to display roughly the variations in death rate among social classes:

DEATH RATE OF MALES PER 1000, ACCORDING TO OCCUPATIONS, FOR REGISTRATION STATES, 1900

Mercantile and trading,	12.1
Clerical and official,	13.5
Professional,	15.3
Laboring and servant,	20.2

Finally, the experience of industrial life-insurance companies, which deal largely with the poorer classes of society, shows a higher death rate than

that displayed by the experience tables of other insurance companies.

INSURANCE MORTALITY PER 1000

Age.	Ordinary Insurance, English Experience.	Industrial Insurance. Metropolitan Life.
20	7.3	10.5
25	7.8	14.1
35	9.3	17.2
55	21.7	35.2
70	64.9	91.0

We find, also, great variations in death rates dependent on varying climatic or seasonal conditions, on the prevalence or absence of certain pests, on the fluctuating virulence of specific diseases, and on numerous natural differences. Other significant factors in mortality are historical events, such as wars, plagues and epidemics. Hard times bring increased mortality, whether due to natural or politico-economic causes. There remain to be mentioned, also, deaths by accident in all its many forms.

MORTALITY HISTORICALLY

Not only does the death rate vary greatly from place to place and from one social class to another, but it changes in a most marked fashion from period to period in history. The records of old cities show that a decided decrease in mortality has been steadily going on. In London, for example, the rate per 1000 has fallen from 50 in 1660-1679 to 15 in 1905, a decrease of 70 per cent. In the plague years, 1593, 1625, 1636 and 1665, the death

rates per 1000 were 240, 310, 130, and 430. The "black death" in 1348-9 probably swept away half of the population in many localities throughout Europe.

Within a quarter century London has cut her death rate in half, while Vienna, if we may trust the figures, has within a century reduced her rate from 60 per 1000 of population to 23. Similarly the mortality rate in Boston has been lowered from an estimated 34 per 1000 in 1700 to 19 today.

Mr. John K. Gore, actuary of the Prudential Insurance Company, shows that the average death rates per 1000 of population among typical American cities was, for the white population, as follows:

Years.	Death Rate per 1000.
1804-1825	24.6
1826-1850	25.7
1851-1863	28.3
1864-1875	25.4
1876-1888	22.9
1889-1901	21.0

The record, even of the last thirty years, displays a fall in death rates that may inspire us with buoyant hope for the future. The mortality rate per 1000 has fallen in Berlin from 33 in 1875 to 16 in 1904; in Munich, from 41 in 1871 to 18 in 1906; and in Washington, from 28 in 1875 to 19 in 1907.

Between 1890 and 1906 New York lowered her death rate per 1000 from 25.4 to 18.6 and Boston from 23.4 to 18.9. The mortality rate in the whole registration area of the United States fell from 19.6 per 1000 in 1890 to 16.1 in 1906, although the area in the last-named year included a larger proportion of urban population.

We have, also, vital records for the city of Havana, running back over a century. These show that while the death rate in 1802 was given as 54.6 per 1000, rising in cholera years even as high as 103.4 (1833), and in the last year of Weyler's concentration methods as high as 91, the rate during the eight years from 1899-1906 ranged from 20.4 to 33.6.

These records also show the remarkable and sudden fall that may be brought about by a change in the living conditions of a community. During the three "concentration" years of 1896, 1897 and 1898, the mortality rate per 1000 was 51.7, 78.7 and 91, respectively. In 1899, the first complete year of American occupation, the rate dropped to 33.6, and since then it has ranged between 20.4 and 24.4. There can be no question that the improvement was almost wholly due to the sanitary reforms introduced by Colonel Gorgas, and the other United States army surgeons under Gen. Leonard Wood.

The record of American army sanitarians in the Panama Canal zone shows as striking results as in Cuba. The death rate in Panama during 1887, when the French canal companies held occupation, ran over 100 per 1000. In 1906 the death rate was 49 per 1000, while in 1907 it fell to less than 34. Colonel Gorgas attributes the decrease in the general death rate in great part to improved sanitation, though he adds that "increased wages, better food and better clothing have no doubt played a considerable part in the general improvement of the health."

ADULT AND INFANT MORTALITY

Mortality varies greatly with age. The improvement in the city death rate of the past half century has been especially marked among the young. It is true that in countries of the same degree of civilization the infant death rate is remarkably constant, but this is probably accounted for by the similarity in the methods of feeding of infants. Certainly where there is a difference in conditions there will be found a difference in mortality. Thus the comparison between the mortality of infants fed on cow's milk and those fed on mother's milk, shows that the former is five to ten times that of the latter. Although the infant mortality rate is probably falling, the decrease is not accompanied by a lowering of the mortality of later life. There is an increased mortality beyond the age of 50 years. In Massachusetts the death rates by age changed during thirty years as follows:

DEATH RATE IN MASSACHUSETTS PER 1000 OF POPULATION IN EACH AGE PERIOD

Age.	1865.	1895.
5-9	9.6	6.2
10-14	5.1	3.2
15-19	9.6	5.3
20-29	12.6	7.1
30-39	11.7	9.7
40-49	12.0	13.0
50-59	17.0	20.0
60-69	33.0	39.0
70-79	70.0	82.0
80 and upward	168.0	185.0

Here, while the death rate for all age periods under 40 has materially decreased, the later periods of life have suffered progressive increases in mortality rate. As Frederick L. Hoffman has expressed it: "There is, of course, no question whatever that the American death rate, using the term in a very comprehensive sense, has substantially declined within the last fifty years, but it is equally evident that this decline has been at the younger ages and not during the period of life which, economically, is of the greatest value. There is no doubt that the mortality of adult ages is still decidedly excessive."

The same tendency, viewed from the standpoint of the expectation of life, is disclosed in the study of two Massachusetts life tables, compiled nearly a century apart—one, Wigglesworth's life tables for Massachusetts and New Hampshire in 1789, though not very accurate; the other, Abbott's Massachusetts life tables for 1893-1897.

EXPECTATION OF LIFE IN MASSACHUSETTS

Age.	1789.	1897.	Age.	1789.	1879.
0	35.5	45.4	60	15.4	15.1
10	43.2	50.0	80	5.9	6.1
20	34.2	42.0	90	3.7	3.4
40	26.0	28.2			

These figures indicate that the expectation of life at the earlier ages is much greater than a century ago, but that for the age of 60 and upward it has remained practically stationary. English life tables, for three decades ending 1900, display the same tendency.

ENGLISH LIFE TABLES—EXPECTATION OF LIFE

Age.	1871-1880.	1881-1890.	1891-1900.
	Males		
0	41.4	43.7	44.1
20	39.4	40.3	41.0
60	13.1	12.9	12.9
80	4.8	4.5	4.6
	Females		
0	44.6	47.2	47.8
20	41.7	42.4	43.4
60	14.2	14.1	14.1
80	5.2	5.0	5.1

These tables show that there is improvement at the younger ages for the period 1891-1900 over the period 1871-1880. For ages over 60 there has been a retrogression. It is observable, however, that between the periods 1881-1890 and 1891-1900 the figures for 60 years have remained stationary, and for 80 have slightly improved. In other words, a baby today has in prospect a much longer average lifetime than did the baby of two generations ago; but a man or woman 60 years old has in prospect an average after lifetime no greater than formerly. The proximate cause of this contrast would seem to lie in the fact that the mortality from many of the diseases of later life has been and is on the increase. The death rates from diabetes, heart disease and Bright's disease have all doubled in thirty years. Cancer is probably on the increase, and "today one in every twenty-one men who have reached the age of 35, and one in every twelve women who have reached 35, eventually die of that disease." In addition there may be mentioned other diseases:

arterio-sclerosis, nephritis, apoplexy, paresis, disorders of the liver, and all manner of degeneration, all of them maladies of adult life, and all of them apparently tending to increase.

PARTICULAR DISEASES

We turn now to the ravages made by particular diseases in the modern world. The death rate in the United States from tuberculosis of all forms equals the combined death rate from smallpox, typhoid fever, diphtheria, cancer, diabetes, appendicitis and meningitis.

The death rate from tuberculosis of all kinds in the registration area was 183.6 per 100,000 in 1907. Large as these figures are, they represent a considerable decrease since 1900. On a par with tuberculosis in the number of its victims in this country stands pneumonia.

The mortality statistics of the last census show that in the registration area of the United States pneumonia is responsible for 11 per cent. of all deaths. Pneumonia is now known to be a communicable disease, the germ of which is very widely distributed; but there is great need for special researches into the modes of spreading this formidable disease. In the meantime the best protection is to "keep in condition." While the germ of pneumonia is the exciting cause of the disease, predisposing causes are acute or chronic alcoholism, exposure to cold, extreme exhaustion, and debility of any kind.

Typhoid fever is in some places yielding to preventive measures in a most striking manner. The

fall in the death rate from typhoid fever in the registration area, from 46.3 per 100,000 of population in 1890 to 33.9 in 1900, and to 32.1 in 1906, may be safely ascribed to improvements in the water and milk supplies of our cities. The surprising reduction of the typhoid-fever death rate in individual cities, resulting from definite improvements in the water supply, gives direct confirmation of this statement.

The typhoid mortality in Munich during 1856 was 291 per 100,000 of population. The city at that time contained numerous cesspools, and the water supply was largely obtained from wells and pumps. From 1856 to 1887 there was great activity in the filling up of cesspools, the abandonment of pumps and wells, and the installation of modern sewers. A pure water supply was also secured, the water being brought from a distance. The typhoid fever death rate fell in 1887 to 10 per 100,000 of population—a reduction of 97 per cent.

In Hamburg the typhoid mortality for 1880-1892 ranged from 24 to 88, averaging 39.7 per 100,000. In May, 1893, a filtration plant was opened, and the rate fell in that same year to 18. For the five years following, it averaged only 7.2, showing a reduction of over 80 per cent.

The introduction of a water filter in the city of Lawrence, Mass., in 1893 was followed by a reduction in deaths caused by typhoid from 105 in 1892 to 22 in 1896, one-fifth the previous figure. Filtering the city water in several other American cities has shown abrupt declines in the typhoid death rate almost as remarkable.

Another method of pointing out the importance of a pure water supply is to compare the mortality rates from typhoid fever of cities that secure water from various sources of supply, as the following table shows:

DEATH RATE FROM TYPHOID FEVER PER 100,000 OF POPULATION, 1902-1906

4 cities using ground water from large wells,	18.1
18 cities using impounded and conserved rivers or streams,	18.5
8 cities using water from small lakes,	19.3
7 cities using water from Great Lakes,	32.8
5 cities using surface and underground water,	45.7
19 cities using polluted river water,	61.1

Thus far our studies indicate that typhoid fever will cease to be a "problem" in any community having clean water and an uninfected milk supply, and in which cases of the disease are treated as dangerous and contagious. Unfortunately such communities are too rare at present.

Perhaps the most common and neglected source of danger of infection from typhoid is the ordinary house-fly or, as Dr. L. O. Howard, chief of U. S. Bureau of Entomology, would have us call it, the "typhoid-fly."

Smallpox, another disease that yields readily to preventive measures, has decreased greatly in virulence and mortality since the introduction of vaccination. In Prussia, for example, the death rate from smallpox per 100,000 population was 24.4 in the period from 1846-1870. In 1874 vaccination, which up to that time had been only intermittently

utilized, was made compulsory, and the death rate per 100,000 fell at once to 1.5, for the years 1875-1886. Other European states have been more lax than Germany. In 1886 the death rate from smallpox in Switzerland was fifty-fourfold that of Germany; in Belgium, forty-eightfold; in Austria, eighty-onefold, and in Hungary, six hundred and sevenfold. Babbage states that "it has been shown by M. Duvillard that the introduction of vaccination has increased the mean duration of human life about three years and a half." Before Jenner's utilization of vaccination to guard against smallpox, that disease was causing one-tenth of all deaths of the human race, just as does tuberculosis today, while "nearly twice as many were permanently disfigured by its ravages. In England 300 per 100,000 population died annually from it. It is computed that during the eighteenth century 50,000,000 people died of smallpox in Europe." Boston was visited twelve times by smallpox epidemics in the century and a half ending 1800.

Yet where vaccination has been made compulsory, or where it is generally resorted to, smallpox has virtually disappeared. The last census reported but 3500 deaths from smallpox in the United States in 1900. Even as long ago as 1826 Denmark was enforcing the practice of vaccination so vigorously that not a single case had appeared for eleven years. Havana, during the eight years prior to the American intervention, reported 3132 deaths from smallpox. In 1899, the year following the American entry, there were four deaths, and three more during the next seven years—a virtual uprooting of

the disease. The present outcry against vaccination is based on a misunderstanding, and is one of many evidences of the imperative necessity of the diffusion of correct knowledge among the people on matters of hygiene and preventive medicine. Whether vaccination should be made compulsory is a fair question, but that it is efficacious is not open to question. The argument that because some unvaccinated persons escape during an epidemic all would escape, is too absurd to deserve serious consideration.

Yellow fever first appeared in serious form at Philadelphia in 1793, when one-tenth of that city's population died of it in the space of six and one-half weeks. Since 1793 the United States has had 500,000 cases, resulting, it is estimated, in about 100,000 deaths. In 1900 it was discovered that a species of mosquito is responsible for the transmission of this fever, and in consequence of this knowledge and its application, the disease is now practically banished from this country. The marked decrease in the death rate from yellow fever in Havana, since the American intervention in 1898, is shown in the following table. The deaths from yellow fever numbered 4420 in the eight years from 1891 to 1898, while in the eight years from 1899 to 1906 they numbered but 465.

YELLOW FEVER DEATH RATE IN HAVANA, 1870-1906
(Rate per 100,000 population.)

Before American intervention.		After American intervention.	
1870	300.5	1898	67.8
1880	324.5	1899	42.5
1890	153.6	1900	124.0

Before American intervention.		After American intervention.	
1895	275.8	1901	6.9
1896	639.5	1902	0
1897	428.0	1903	0
		1904	0
		1905	8.0
		1906	4.3

These results have been due partly to the elimination of the contagion-carrying mosquito and partly to the general improvement of the city's sanitary appointments.

The impressive figures just presented, showing the fall in mortality from so many of the most dangerous diseases, point clearly to the value of preventive measures in the conflict with disease. The fall in tuberculosis mortality is directly due to the growing use of hospitals, which have tended to isolate consumptives, and to a use of our recently acquired knowledge of the efficacy of fresh air and the outdoor life; typhoid fever has virtually disappeared when water and milk supplies have been made pure, the open privy abolished, and flies and other carriers of the specific cause of the disease have been provided against; smallpox has given way before vaccination; yellow fever is fast disappearing, now that the agent of transmission is known; while many of the less serious diseases are losing their power, purely owing to preventive methods.

Some diseases, once the scourges of humanity, have practically disappeared from the civilized world. Scurvy, up to the latter half of the eighteenth century, decimated the armies and fleets of Europe. During Anson's famous expedition, about

the year 1750, 600 out of 900 died, chiefly from scurvy. The use of lime-juice and fresh vegetables has practically eradicated the disease.

"Cholera was wont to visit the cities of the Atlantic coast in the past about every ten years, and it was a standing menace to the world every summer. It was not uncommon for the disease to decimate whole towns and cities. Since the discovery of its cause, however, it has been robbed of its terrors, and the children of today will probably never know of it except by name."

Malaria has been on the decrease ever since the discovery that the malarial organism is transported by a species of mosquito. Even the five years ending 1906 show a progressive decline in the death rate from malarial fever in the registration area. The figures are 5.4, 4.3, 4.2, 3.9 and 3.5 deaths per 100,000 of population, for the five years in question.

In themselves, the figures are so small as to show the virtual disappearance of the disease, at least from the Northern States. It is still very common in the Southern States. Its evil is by no means to be measured by the deaths it causes. It produces chronic disability and predisposes to other diseases.

Finally, the furnishing of pure milk to the infant population of the cities is eliminating year by year the infant scourges—diarrhœal diseases and related maladies.

There are of course diseases which show no sign as yet of decreasing. The census volume, "Mortality Statistics of 1906" (p. 29), gives only one

important disease (diabetes) as actually on the increase within the registration area, but several which are given as having "fluctuating rates," such as cancer, heart disease and Bright's disease, seem still to have an upward trend.

It is known that malaria is preventable. Why, then, is it not prevented in the South? Probably for two reasons. First, the facts are not generally known, owing to lack of vital statistics in the Southern States. Second, owing largely to this ignorance no adequate effort has yet been made.

The preventability of accidents is beginning to be appreciated. It is now proposed by Mr. W. H. Tolman to establish in New York a museum of safety and sanitation to demonstrate this fact. Mr. Frederick L. Hoffman, statistician of the Prudential Insurance Company, estimates the number of accidental deaths among male workers alone in 1908 as between 30,000 and 35,000.

CHAPTER XIX

Should the Pregnant Woman Work in Factories?

A number of European countries now prohibit the employment of pregnant women, both before and after confinement. Laws placed upon the statute books to that effect in this country would go a long way towards conserving our national vitality. I feel, however, that in this country such laws will not be needed if employers will only act humanely. Our industrial situation differs so greatly from that of other countries that the need of a woman working in a factory or mill after she becomes pregnant, is, except in a few cases, reduced to a minimum. We are told that pregnancy often favors the development of phthisis or consumption. This is especially true if a woman is predisposed, in fact this condition often kindles a smouldering fire. Women who are weak and inclined to tuberculosis becoming pregnant, if subjected to long hours and constant strain, in some cases, in overheated rooms, fall an easy prey to this dread disease. We all know that after a woman becomes pregnant, in order that she should bear healthy offspring, she should enjoy the best possible hygienic surroundings, and exercise should be taken in the open air, free from the clamor of the shuttle or the dust of the loom.

I have seen a number of cases in the last fourteen years, where a girl got married and then, anxious to help the husband furnish a home, had continued to work at her old occupation in the mill. She would commence to run down, "get tired easily," as she termed it, have a little hacking cough and then after her delivery of a child, would develop what is known to the laity as quick consumption. The germ was already in her system, but only became active when her condition, already weak, was made more so by child-birth.

We as a nation may find, as they have found in older countries than ours, that we may yet have to pass national and state laws bearing upon this important subject, for it is certain if we would preserve our national health, and after all this means our national wealth, we must have laws that will protect the health of the generations yet to come.

Suppose the mother actually escapes disease of any kind and her health is not noticeably affected, the chances are that the offspring will suffer and be born a weakling, be a sickly child, so called, and aside from the care be a continual expense, because it must have almost continual medical care until the tenth year is reached. I have often heard the following expression from the lips of a workingman: "Doctor, that child has never been well since birth and it has taken all I could earn to pay the doctor's bills." This outcome ought to be taken into consideration before a woman subjects herself to the strain of long hours on her feet in a factory or mill, during the period of pregnancy.

CHAPTER XX

The Working People as Spendthrifts, and Why?

If forty per cent. of the advice given to the working people by physicians, which they buy and then throw away, were utilized, there would be less poverty, less sickness and millions of dollars saved annually by this class. There would be fewer medical colleges, fewer men following the practice of medicine.

As it stands today, a man or woman goes to a physician with a bad attack of indigestion, for instance. The physician prescribes for their temporary relief and then lays great stress upon the importance of what they should eat and how they should eat it, and tells them if they would find permanent relief, they must practice self-denial. Do they do it? *No!* They take the medicine prescribed, receive temporary relief and then at the next opportunity they fill their stomachs with the very things the doctor has advised them to avoid. Such cases grow worse as time goes on, and sooner or later the patient is seized by an attack of appendicitis which lands him in a hospital, which either means death, or if recovery, a lingering illness, the loss of many weeks' pay and a large amount of

strength. Therefore, I say to you working people, you are spendthrifts, for your health is your bank account and your stock in trade. If you go to a lawyer, he gives you no medicine, simply a little advice which you closely follow. No matter what your friendly neighbor tells you he cannot shake your confidence in what the lawyer has told you; but you would listen to the story of some person who knows nothing of medicine, take his advice, disregard the advice that has been given to you and return to your physician only when you got so bad you could no longer endure the suffering.

In a recent issue of the World's Work, in an article written by Edwin Bjorkman, entitled, "The Unnecessary Curse of Sickness," he says:

"In the Shepard Company stores, the daily absences because of ill health were found to average 2.5 per cent. of all the employees. Using the exact figures for three months to make an estimate for the whole year, the Siegel-Cooper Company arrived at a total annual loss of 32,571 days for about 3100 regular employees (outside of 'contingent help'). Thus the number of people absent daily because of sickness averaged 3.5 per cent. of the whole force. A comparison of these figures with those furnished by the employees' benefit association indicates that 0.5 per cent. of the absences might be ascribed to serious illness and 3 per cent. to minor indispositions.

"In this connection it should be remembered, however, that the rate for illness is lowered by the fact that the association does not pay benefits beyond the sixth week.

"A census taken at Wanamaker's, March 15th to March 20th, 1909, revealed an average daily absence of 164 out of a total of 4500 employees, and all but a negligible fraction of these absences were caused by sickness. The average sick rate for that brief period was 3.5 per cent. of the whole force, but, allowing for a large decrease during the summer months, it is safe to place that rate at 3 per cent. for the entire year. The records of the employees' benefit association for the twelve months ending with February, 1908, showed 1820 days of illness among 4500 employees—a rate of 0.77 per cent. for the whole force.

"Everything considered, I feel warranted in drawing from these figures the conclusion that at least 3 per cent. of the 32,000,000 active workers between fifteen and sixty are all the time kept from their work by ill health. No distinction is here made between illness and indisposition, as it has no influence on losses expressed in terms of actual absence. Nor shall I for the present have any chance to refer to the mildest degree of ill health, beyond quoting the declaration of Dr. Luther H. Gulick that 'minor ailments are the chief source of decreasing our daily efficiency,' and that 'nine-tenths of them could be removed by careful attention.'

"According to my conclusion, 960,000 sick men and women fail daily to furnish their proper share of productive activity. As that number includes high-salaried officials and professional men, not less than day-laborers and shop-girls, it seems safe, as before, to place their average weekly earnings at

$9. This makes a daily loss in earnings of $1,440,000,, or about $450,000,000 a year—a sum that bears a striking resemblance to those obtained by Professor Fisher and others, by the use of foreign sickness rates. In fact, comparing the various estimates arrived at in so many different fashions, it seems hardly possible to escape a recognition of the sum of $500,000,000 as most nearly approximating the annual loss in salaries and wages through ill health. Place the proportion paid out for salaries and wages as high as 40 per cent. of the value of the finished product, and we arrive at a possible economical loss of $3,600,000 a day, or $1,116,000,000 a year. And still we have not included the sick bill proper—the money spent on medicines and medical care and nursing—nor the funeral expenses. The United States Bureau of Labor has published figures showing the annual average expenditure among workers for sickness and death to be $27. On the basis of these ridiculously low figures, the annual sick bill of the breadwinners of the nation should be about $460,000,000. Still the ill health among the unproductive elements of the population remains to be taken into account—and these elements include children and aged persons, among whom the sickness rates are known to be many times higher than among the productive classes. If we add it all up, we shall easily reach the three billions of Dr. Gould's estimate. And, even then, we have to bear in mind the losses, not to be translated into dollars and cents, which result from the constant interference of ill health in

all its degrees with the orderly procedure of our private lives as well as the life of the nation."

My conclusion is that one and one-half billion dollars are lost each year by the working class, fully justifying my contention that they are spendthrifts of that most valuable of all possessions—the human health.

Let us hope in the next decade that this loss will not be repeated, for it can ill be borne.

CHAPTER XXI

School Buildings and the Prevention of Disease

In the training of a citizen and in the building of a nation the most important building to consider is the schoolhouse. Disease will never be banished by medicine and surgery; it must be routed by education. No better example of this can be shown than the fact that by educational methods, which consist principally of the scientific application of fresh air and diet, the mortality of tuberculosis has been reduced from four hundred thousand to two hundred thousand in the last nine years. This has been done principally by an educational effort. The press has led in the dissemination of knowledge.

Results undreamed of have been accomplished, among them the judicious use of schoolhouses. The instruction of the young along lines of hygiene and health should go hand in hand with instruction to the adult in such a manner that they can understand. You ask how can this be done and how can I bring about this result? The plan is simple: Start a petition among your neighbors to your board of education, asking that school buildings in different parts of the city be used for a popular course of instruction on personal hygiene and pre-

ventive medicine. Will they be attended? *Yes!* Think of the attendance at the course of popular lectures given last year at Cooper Union, New York. Over a million people attended in one year. The danger in any community, whether it be from disease or crime, lies in ignorance. In enlightened communities crime is reduced to a minimum and the same is true of disease. We must know that disease and evil exist, we must know their causes, before we know how to fight them.

We could not fight tuberculosis until we knew that the cause was a little bacillus and that air and sunshine were its worst enemies and its sure death. Education tells us that the care of the stools of a typhoid patient will practically stop its spread in a community, that promiscuous spitting spreads the germs of tuberculosis; and it tells us more—it tells us that a perfectly healthy body resists nearly every germ causing disease of any kind.

These are some of the things that may be taught if the schoolhouse is utilized for the purpose of spreading knowledge which we should all know. Ignorance of the laws of nature, coupled with the fact that you so often disregard the advice of your family physician, is responsible for many lingering diseases and perhaps is responsible for one-third of all man's ills. Latter-day medical science has demonstrated the fact that excesses in all things lead to a deranged and diseased body. Bright's disease is caused as often by overeating as by overdrinking. The word *intemperance* means many things; it not only applies to drinking, but it applies to eating, sleeping, bathing and breathing.

CHAPTER XXII

Rest in the Prevention of Tuberculosis

One old physician who had practiced medicine for nearly half a century at last arrived at the conclusion that after all, rest was the basis of all prevention and cure of disease, so he wrote a beautiful volume entitled, "Rest and Pain." Rest is the essential factor in the prevention of disease as well as the most potent factor in the cure of disease. The reason is perfectly plain. The nervous system must be kept in a healthy condition else it cannot impart strength and elasticity to our muscular system. A man may have ever so well developed muscles, but if you destroy the nerve supply to these muscles, then they wither and die. You can destroy the nerve supply to the stomach by fatigue and overstrain. What have you then done? Prevented the natural action of all the secreting glands, causing a condition which renders the stomach useless as an organ of digestion; this in turn interferes with the blood supply of the whole body because proper nutrition is not taken from the food you swallow, and depraved blood is the consequence. Poor blood means that the red blood corpuscles which carry oxygen are weakened and no longer do their part, and that the white blood

corpuscles that always fight germs of every disease are also weakened, so you can easily see how much easier it is to fall sick than to keep well, if you neglect your rest.

The American people should be the longest lived of any nation, because they have better food, better wages, better housing and a multitude of advantages which other nationalities do not have; but they do not *rest*. The American girl does not rest; she is continually on the go. After she has worked ten hours in a shop or store, she *should rest*. When she is overtaken by incipient tuberculosis and is anxious to get well, the first thing that is prescribed for her is *rest*, and she soon finds that it brings color to her cheeks and strength to overtired muscles.

The American housewife should remove her clothing and give herself up to one hour of complete rest each day of her life. She would be happier, stronger, would sleep better at night, would bear stronger offspring, and as a result of all this, would hold her age, and when the change of life came she would be in a position to ward off the multitude of ills that arise at this time. If the American woman rested more she would not become a nervous wreck at the age of forty-five.

The boy and girl reared in the country are stronger than their city cousins, because they rest more. I remember well, as a boy, that I had certain hours for rest which I must take no matter how I felt. I must be in bed at a certain hour, that I might get up in the morning. We, as Americans, must take more time to rest or we shall decay; we

shall wear out. The automobile that has no rest wears out; the horse that has no rest wears out; the engine which is not relieved or has no rest is short-lived. Why does this not apply to man?

The young man and the young woman who must carve out their future for themselves, must school themselves to rest systematically. This applies to the student, to the man of business, to the professional man and to the scientist.

If you are afflicted with early tuberculosis and must remain at home, the rest cure is your salvation. Get all the rest you can and get it in the open air tempered with sunshine. When weather will permit install yourself in the quietest part of the house; the back piazza if a yard is not available. Avoid too much company, avoid using your voice, avoid getting overtired by reading, avoid everything that brings about the slightest fatigue, and simply *rest*. If you are running a temperature, rest absolutely until this temperature is normal and has remained so for at least three weeks, then commence with a mild exercise that does not tire you. Sleep a good deal. Close the eyes for an hour at a time even if you do not sleep; this will rest you. Place yourself in a reclining chair in such a position that the position itself means rest. Sleep in the open air, avoiding draughts. Look, when possible, at pleasant pictures; some good friend will always find some good illustrations that are pleasing and restful. Look on the bright side of life, no matter what your station in life. Live one day at a time. Remember that our American civilization is fast making for better health conditions every-

where. Try and pick your associates from those with a genial disposition. Eat easily digestible food, don't worry, and you will soon be surprised at the results you have obtained in a short time by learning to rest.

If you are a working girl or boy, follow out the rules laid down while at work, and then if you still do not get over that tired feeling, consult a physician first and then make arrangements to leave your work for a few weeks for a complete rest. Don't say that you cannot afford it. You can afford anything that will build up your health; you can pay a few back bills if you get your health. Many a case of early consumption has been brought about by going too long without a vacation. Getting over-tired is the most frequent cause of rheumatism, and I have found cases have developed most often in those who have had a long mental as well as physical strain. Appendicitis comes on often as a result of overtired muscles and nervous system, because a peculiar condition is thus set up in the bowels.

In conclusion, I want to say that my experience and observations have taught me that whenever a daily, nightly, monthly system of rest has been followed, in a period of a few years more working days are at the disposal of him who rests than of the one who says he cannot afford to take a rest. To repeat what I have already said, this complex and perplexing American life, if we would live longer, must have periods of cessation for those in all walks of life, so arranged as to suit the individual case. We must learn to breathe, to utilize fresh air to its best

advantage, to avoid worry, to bathe properly, to eat properly, to practice self-denial, to walk and exercise properly, and finish it all by a close study of the chapter *rest* and its effects upon body and mind.

CHAPTER XXIII

Drinking-cups and their Relation to Disease

It is now a proven fact that the ordinary drinking-cup is a carrier of disease, that it may convey the germs of the following diseases: Diphtheria, meningitis, bronchitis, tuberculosis, pneumonia and la grippe. The annual death rate from these diseases alone, in the United States, is 400,000. It is also possible that a person might be inoculated with syphilis from a drinking-cup.

The present system of drinking from public fountains should be condemned, and in traveling one should always carry one's own drinking-cup; the common communion-cup should be abandoned, and a more thorough system of cleansing of cups at soda fountains and public bars should be insisted upon by local health boards.

Through the courtesy of the Technical World Company of Chicago, I print below their excellent circular bearing directly upon this subject:

DEATH IN SCHOOL DRINKING-CUPS.

By Alvin Davison, M.S., Ph.D.
Professor of Biology in Lafayette College, and author of "The Human Body and Health."

"The greatest achievement of science in the opening decade of the twentieth century is the awaken-

ing of the people to the fact that most human diseases are preventable and a large proportion of early deaths avoidable. At least 700,000 of the million and a half deaths occurring annually in the United States result from the minute parasitic plants and animals gaining access to the body. These invisible foes wage a continual warfare against both strong and weak, rich and poor. Civic duty as well as self-preservation demands that these life-destroyers should as far as possible be shut out of the human system.

"The death rate in any locality or country is usually a true index of the habits and education of the people in reference to the protection of health. In benighted Spain twenty-seven out of every thousand inhabitants perish annually, while in enlightened Norway death claims yearly only fourteen of each thousand residents. In New Orleans, the death rate among the colored people is forty-one per thousand, while among the white race it is only twenty-one per thousand. Ignorance and negligence in regard to the laws of sanitation invite sickness and death.

"The chief avenue by which bacteria enter the body is the mouth. The air, food, water, and especially the drinking-cup, are the usual means by which the disease-producing parasites are transferred from one person to another. The purpose of this paper is to consider only the latter in its relation to health.

"The evidence condemning the use of the common drinking vessel upon any occasion, whether at school, church or home, is derived from three

sources: 1, the frequent presence of disease-producing bacteria in the mouth; 2, the detection of pathogenic germs on the public cups; and 3, the discovery that where a number of persons drank from a cup previously used by the sick, some of them became ill.

"Recent investigations show that the germs of diphtheria and grippe frequently remain from one to three months in the mouths of the patients after they have recovered from the disease. The very extensive and careful observations of the Minnesota State Board of Health demonstrated that in over half of the diphtheria cases, virulent germs remained in the nose and throat of the patients three weeks after recovery. Most careful examinations by expert bacteriologists show that many of the common sore throats are really light cases of diphtheria. Of the 2038 mild sore throats examined in the school children of Hartford, Conn., 591 were shown to be due to the true diphtheria germ. The bacilli now universally employed in the making of diphtheria anti-toxin were first isolated from a mild sore throat. Bacteria which in one person cause only slight illness may, when transferred to another individual, produce serious disease and death. This widely different effect of the same germ may be due to the variation in the germ-killing power of the body tissues, or it may result from new association with other germs.

"It is an established fact that a considerable number of well persons harbor in their mouths the germs of grippe, pneumonia, diphtheria and tonsilitis. Examination of 4250 persons by the Mas-

sachusetts Association of the Boards of Health showed that over one hundred of them carried in their mouths virulent diphtheria germs. Pennington in 1907 found virulent diphtheria bacilli in nearly five per cent. of a large number of apparently healthy school children in Philadelphia. In Minnesota true diphtheria germs were found in the mouths of seventy persons in every thousand examined. The average results of a large number of investigations demonstrate that nearly one per cent. of well persons carry in their mouths true diphtheria germs. In Boston sixty per cent. of all cases of common catarrh examined showed the presence of grippe bacilli. Considerable evidence is at hand showing that the germs of sore throat, pneumonia and bronchitis are present in many people who mingle with the well and drink from the public cups.

"During the past six months I have investigated by means of direct microscopic examination, by cultures and by guinea pig injections, the deposits present on various public drinking vessels. Cup No. 1, which had been in use nine days in a school, was a clear, thin glass. It was broken into a number of pieces and properly stained for examination with a microscope magnifying 1000 diameters. The human cells scraped from the lips of the drinkers were so numerous on the upper third of the glass that the head of a pin could not be placed anywhere without touching several of these bits of skin. The saliva by running down on the inside of the glass had carried cells and bacteria to the

bottom. Here, however, they were less than one-third as abundant as at the brim.

"By counting the cells present on fifty different areas on the glass as seen under the microscope, it was estimated that the cup contained over 20,000 human cells or bits of dead skin. As many as 150 germs were seen clinging to a single cell, and very few cells showed less than ten germs. Between the cells were thousands of germs left there by the smears of saliva deposited by the drinkers. Not less than a hundred thousand bacteria were present on every square inch of the glass. Most of these were of the harmless kind abundant in the mouth, but some were apparently the germs of decay feeding upon the bits of the human body adhering to the cup.

"In order to determine how much material each drinker is likely to leave on the cup, I requested ten boys to apply the upper lip to pieces of clean flat glass in the same way as they touched the glass in drinking. These glass slips thus soiled were properly stained for microscopic examination, which showed an average of about 100 cells and 75,000 bacteria to each slip.

"The results of the examination of cups No. 2 and 3, taken from a school-room, were similar to those of No. 1. Cup No. 4, which had been apparently in use for several months without being washed, was secured from a high school. It was lined inside with a thin brownish deposit. This was washed off with ten cubic centimeters of sterile water and a sterile swab, and the washings were then placed in a conical tube which was put into

a centrifuge and rotated rapidly until all the solid matter settled to the bottom. By spreading this sediment over a half square inch of each of twenty-two slides and staining it, the characteristic features were easily made out under the microscope. Particles of mud, thousands of pieces of skin from the mouth, and millions of bacteria constituted the mass. To determine whether any of these germs belonged to the disease-producing group, ten of the slides were treated with the stain and acid, serving to show the characteristics of bacillus tuberculosis. On one of these slides was clearly shown a clump of scores of germs corresponding in all details to those of tuberculosis. As occasionally other germs are met with having the same staining qualities and microscopic appearance as those of tuberculosis, I procured another cup from the same school to apply the final test for detecting those relentless enemies which prey upon human flesh and add daily to the city of the dead in our own land victims to the number of 400.

"The washings from this cup were sedimented in the centrifuge tube. One-third of the sediment was injected under the skin of a healthy guinea pig, and another third was used in inoculating a second guinea pig. The first animal died forty hours after receiving the injection. A microscopic examination of the blood in the heart revealed the presence of numerous pneumonia germs which when planted on blood serum and agar, kept in an incubator at body temperature for two days, developed the characteristic growth of Fraenkel's pneumococcus. This experiment gave undoubted evidence that the

germs of pneumonia had been present in sufficient numbers in the cup to cause blood poisoning or septicæmic pneumonia in the animal.

"The second guinea pig injected with the cup sediment was killed five weeks later. The autopsy revealed numerous tubercular foci in the liver and several much enlarged tubercular lymph glands. Microscopic examination of the diseased tissues proved the presence of the true bacillus tuberculosis. By careful inquiry it was learned that several pupils in the school from which the tubercle-bearing cups were secured, were then sufferers from tuberculosis. In the light of recent discoveries, showing that tuberculosis is not usually acquired by inhaling the germs, but by receiving them with food or by mouth-contact with objects soiled with tubercular deposits, does it not seem probable that the drinking-cup may very often serve as the transmitter of the white plague? Doctor Anders of Philadelphia by means of guinea pig inoculations demonstrated the presence of tubercle bacilli in two out of five specimens from the dregs of common communion-cups.

"In order to make a further study of the germs, a third portion of the sediment from cup No. 5 was planted in culture media, serving to isolate the various kinds of bacteria so that the characters of each might be observed. Ten different species were thus separated and examined. Streptococci, apparently the same as those occurring in sore throat and tonsilitis, were present, as was also the common pus germ staphylococcus aureus. Doctor Anders has reported the discovery on the com-

munion-cups, from a Philadelphia church, of numerous pus germs as well as pus cells.

"The microscopical examination of cups Nos. 6 and 7 secured from a railway station and a clubhouse showed numerous cells from the lips, and thousands of bacteria present in the upper portion of the vessels, although they appeared quite clean to the naked eye. Cup No. 8, taken from a railway station, was the only vessel examined that could be called reasonably clean. Its surface carried only two or three human cells to the square inch and upon the same area were less than five hundred bacteria.

"A third source of evidence condemning the public cup is found in the report of Doctor Forbes, of Rochester, who refers to an epidemic of diphtheria in his city, which occurred among twenty-four persons and was traced unmistakably to a common drinking-cup which all the sick had used. Tonsilitis and sore throat are known to affect a larger number of pupils in schools where a common drinking-cup is used than in those schools where the individual cup is required, or the sanitary drinking fountain has been installed.

"The mortality statistics of the Census Bureau show that diphtheria, meningitis, bronchitis, tuberculosis, pneumonia and grippe, all of which are likely to be acquired by the use of the common cup, are responsible for nearly 400,000 deaths annually in the United States. This fact indicates that the germs of these diseases produce in a single year more than a million cases of serious illness. The financial loss to the country and the mental

anguish as well as bodily suffering due to these preventable diseases, call loudly for the banishment of the unsanitary and filthy common communion-cup, as well as the public drinking-vessel, befouled with human excretions shielding the darts of death.

"More than ten thousand churches have now adopted the individual communion-cups, and many schools either provide a sanitary drinking fountain or require the pupils to use individual cups. In many places in Germany, pasteboard cups are furnished, which after being once used are destroyed. Wherever hygienic measures have been adopted in a community, sickness and death have decreased. By living more in accordance with the rules of hygiene, New York city reduced her death rate from 25 per thousand to 18 per thousand during the period from 1890 to 1905. Within the same years, Chicago has reduced her death rate from 19 to 14 per thousand.

"In Circular 127 of the Bureau of Animal Industry, issued April 4th, 1908, are these words:

" 'The inhalation theory to account for the occurrence of pulmonary tuberculosis has been shown to be no longer tenable, because no substance can be carried into the finer bronchioles by the respiratory process, and because tuberculosis lesions in the lung have been shown to spread from the vascular system, the finer capillaries, and not from the air passages. Dried and pulverized tuberculous material has been shown to lack infectiousness, and the infectious spray discharged from the mouths of tuberculous persons during speaking and coughing has been shown to be of importance only in their

immediate environment, unless such persons are permitted to handle articles of food, to which the larger droplets of the spray may adhere. The introduction of bacilli into the body through the uninjured wall of the digestive tract, anywhere from the mouth downwards, is the chief mode of infection with tuberculosis.' "

CHAPTER XXIV

Flies and their Menace to Health

Perhaps no better title to this chapter could be written than that taken from an extract from the Government Bulletin No. 78, which reads, "From Flies and Filth to Food and Fever." The name typhoid-fly is given as a substitute for the name house-fly now in general use. The typhoid-fly possesses importance as a disseminator of tuberculosis. The number of bacteria on a single fly may range from 550 to 6600. The importance of keeping flies, as agents of disease, from private houses, cannot be overestimated. Why? Because flies are disease carriers; because they live and breed in all kinds of filth; because they infect food and drink by germ-laden feet. Each female fly can lay 150 eggs, every one of which in turn becomes another fly. Flies are fond of feeding on tuberculosis sputum. The specks of flies contain live tubercle bacilli. After they have eaten this sputum, they carry in their mouth proboscides and on their legs putrefying and disease germs on which they have recently fed and then crawl over food, infecting it.

Keep flies from the sick, especially those ill with communicable diseases. Don't forget that flies will carry the bacilli of typhoid fever from the stools of a patient, left exposed and not disinfected, to the

food in the kitchen and dining-room. This is no conjecture, for the Spanish-American war proved this fact. Look carefully after cuspidors; remember that where absolute cleanliness prevails, there must be no flies. Look daily after your garbage can; do the same thing with your stable. Flies breed in horse manure, decaying vegetables and garbage of all kinds.

As I am writing this article I am making an investigation into an outbreak of typhoid fever in a small village in an adjoining town. Here nine cases have developed within the last two weeks. The water supply seems to be good, and the only reason that I can find for this spread of typhoid fever is the fact that the common house-fly has been "getting in his work." In this particular village the old-fashioned earth privy is still in existence, and in several instances we have found swarms of flies gathered about these privies. They then make a journey to neighboring houses and deposit the bacilli upon the food eaten by the people. This is only one of many cases which I might cite which has come under my observation either in my own practice or by having my attention called to it by other physicians.

It is a well-known fact that in the so-called dry seasons, when the atmosphere is humid and the water is low in well or swamp, we seem to have an abundance of flies and also an abundance of typhoid fever. The question of infection from the source of flies is so recent that literature upon this subject giving absolute facts and statistics is very meagre. It is my belief, however, within the next

ten years that old question of "where did he or she contract this disease?" in many cases will be cleared up and traced to the flies.

If you are living in the country and you have a case of typhoid fever in your home, avoid doing what I have seen done in this recent epidemic, namely, depositing the stools near the house. In this case a hole in the ground about three feet deep and two feet wide should be dug. Into this should be placed an abundant supply of chloride of lime, which is very cheap and one of the most powerful disinfectants we have. Each stool of the patient should be emptied upon this lime and covered with earth, adding lime from time to time as the case goes on. The odor of the lime will keep the flies away and consequently the possibility of spreading the disease from this source will be very slight.

One important step now being taken by many local boards of health is the covering of meat in the public markets. This does away with the danger of flies, which, having come from some filth district, deposit germs upon meat which are sometimes not destroyed, even by cooking.

CHAPTER XXV

The Modern Factory and what it Means to the People Employed Therein

Wise and judicious laws are fast being enacted in every state for a better system of factory hygiene, particularly in Massachusetts and New York. The utmost care is being exercised not only in factory construction, but in making provision for better and more sanitary conditions in those already in use. The employer has learned that you can do more and better work in a well-ventilated, well-lighted factory than in one of the old kind. It has become a business proposition with the manufacturer, as well as a law of many states, that better provisions are made in factories for pure air and sunlight than are made in your own homes. Many of you who work in factories would do well to copy some of the rules of hygiene observed there and take them home. It means dollars and cents to you; it is a sane business proposition, for I have told you that your health was your capital. In a few years every state will have passed laws for tenement-house inspection. Indeed, we never shall stamp out tuberculosis until we have the co-operation of your landlord and yourself. Many cases of consumption emanate from dusty trades and ill-ventilated workrooms, but many more have

their origin because you excluded fresh air and sunshine from your homes. The bacilli of tuberculosis live and thrive only in dampness and foul air. Sunshine and fresh air are its destroyers.

The modern factory, as it is being constructed and maintained today, gives you a place ten hours in a day where you can breathe fresh air while you work. Yet in many instances, as State Inspector of Health, I have found factories well supplied with windows where fresh air might be admitted, yet employees kept them closed against the advice of the owner because they were afraid of taking cold. This is all wrong. Remember you take cold in foul air, not fresh air. Patients sent to Rutland and similar institutions do not take cold when subjected to fresh air and sunshine. Behind closed windows and drawn curtain-shades you contract consumption, and then to cure the disease you immediately seek for places where fresh air and sunshine are the only treatment.

One great trouble with the working people is that they do not think for themselves. Remember that the conservatism of the past has been relegated to the background, and that the press, to which you have access for a few cents a day, is spreading the gospel of truth and preventive medicine. Read less "ads" of quacks and their cures, keep your money in your pocket and follow the teachings of works like this, written by men with your best interest at heart, which are telling you every day how to live.

The man you work for who has been successful in business has never allowed anyone to do his

thinking for him. He has done it for himself; and this you must do if you would have capital, that is, *health.*

In a certain factory, which from a hygienic point of view is one of the best in New England, there have been four cases of tuberculosis in the last six months. Do you think the disease originated in this factory? No. It started in the home, but it developed in the factory because the employee was obliged to work and tire the body and lessen its resistance. Should the manufacturer be willing to help you to get rid of your trouble because it made its appearance while in his employ, give him your coöperation, and between employer and employee we shall soon stamp out consumption. Your sleeping room, your late hours, your carelessness outside of your factory hours, all contribute towards fanning into flame a fire, whether it be started in the factory or the home.

The physician, the social worker, the hospital, the press, all give you advice that is valuable, which in many instances is cast aside until disease overtakes you, and then many of you hasten to a magic healer, because you want a quick cure. One so-called magnetic healer in this city boasts of 750 patients a week at $2.50 each,—*think of his income!* And you pass the doors of reputable men who are willing to give you honest and sound advice and do not ask you for advance payments.

Study how to prevent disease, not how you may be cured. Remember that every serious illness, no matter how complete the recovery, makes you more susceptible to another attack.

CHAPTER XXVI

Appendicitis

Inflammation of the vermiform appendix. The most important of all acute intestinal disorders. To the work of American physicians belongs the honor of its early discovery. Dr. Pepper in 1889 described the relapsing form. Dr. Fitz in 1886, by his exhaustive articles, served to put the whole question on a rational basis. Dr. Willard Parker was the first to advocate early operation. Dr. Treves, of London, has been foremost in advocating proper surgical treatment.

It is a preventable disease and in seventy per cent. of all cases which send you to the surgeon, early attention to a few simple health rules would have warded it off. The laity were early taught that foreign bodies, such as seeds of fruits, bits of bone, etc., lodging in the sac, were the cause, but of 152 cases studied by Dr. Fitz, only twelve of them were found to have this element as causes. Micro-organisms working in the intestines forming solid masses are the most common causes, coupled with constipation, causing an abnormal condition which places the system in a condition where these organisms may work to an advantage. When this takes place a catarrhal condition of the bowels is found. Many cases, too numerous to

mention, have been described, but my experience of fourteen years in general practice has led me to believe, and this belief has been strengthened by a study of many other men, that in 90 per cent. of all cases of appendicitis there is a lowering of the general health, setting up abnormal conditions in the bowels, before the disease will flourish to any extent.

HOW TO PREVENT APPENDICITIS

First of all, look to the general health. Follow the advice of previous chapters on eating and sleeping; avoid constipation in every form. If the bowels will not move each day, try the use of some simple laxative, then resort to an injection. One quart of warm water to which a little soap has been added, tablespoonful of Rochelle salts, tablespoonful of glycerine added to each injection. Above all, if you are working and feel tired take a rest and a complete change. A trip to the country for a couple of weeks with a change of water will often ward off an attack of appendicitis. Unless the bowels move each day, freely, use the above injection twice each week. Remember that every pain in the side does not mean appendicitis, but it is a signal to consult a physician if the above rules do not remove the cause. A sharp pain in the right side, with tenderness, the pain extending to the centre of the bowels and sometimes up into the stomach, a pain which does not let up, are pretty sure signs that you should consult your physician. Do not wait three or four days, but

after ten hours at the longest, call him. Whenever this pain is first noticed use an enema at once, and for this purpose, to the quart of water and soap add one-half teaspoonful of spirits of turpentine; inject into the bowels. Relief can often be obtained while waiting for your physician by adding a table-spoonful of turpentine to a quart of hot water, wringing out a large piece of flannel in this and applying it to the bowels, renewing it every half hour.

CHAPTER XXVII

Dyspepsia, and how to Avoid it

This disease is the most common of all diseases and is no respecter of persons. Old and young, rich and poor, alike suffer. Its many forms need not interest you, but the avoidance of any form should always be your aim. Why? First, because acute indigestion is often fatal; and second, because if the food taken into the stomach is not digested the whole body suffers for nutrition, which it must have if we would maintain good health. Therefore, coming to the point at once without any lengthy discussion of the subject, I am going to lay down a few simple rules which I have used in my private practice for the last twelve years and always with success when they are lived up to by the patient.

1. Getting overtired; this is one of the most common causes, therefore avoid.

2. Worry; another common cause; avoid.

3. Overeating, overdrinking. Drinking with the meals is a very poor habit and can easily be overcome. If the stomach troubles you in any way, or if you would avoid having it trouble you, continue reading:

GENERAL RULES

Small meals taken at regular intervals. Punctuality is of great importance. Masticate thoroughly; eat slowly and learn to eat without drinking with food.

MAY TAKE

Soups.—Small quantity. Clear soups of beef, mutton, oyster. A little vermicelli or tapioca may be boiled with these. Tomato soup.

Fish.—Raw oysters, weakfish, whitefish, shad, cod, perch, trout, bass, smelt, fresh whiting.

Meats.—Meat-juice, roasted or boiled beef, mutton, chicken, tripe, venison, tongue, sweetbread, lamb chops, roast partridge, woodcock, plover.

Eggs.—Raw, soft-boiled, baked, poached; eat dry toast or stale bread with eggs.

Farinaceous.—Bread at least one day old, rye, gluten, and graham bread, zwieback, crackers, cream crackers, cracked wheat, rice, sago, tapioca, macaroni with toasted bread crumbs, corn meal, hominy, wheaten grits, graham grits, vermicelli, rolled rye, rolled oats, rice cakes, browned rice, baked flour, granose, cerealin, aleuronat toast (especially if hyperacidity).

Vegetables.—(Best made into purée by passing through a colander or mashing.) Greens, spinach, lettuce, water-cresses, sweet corn, green peas, asparagus, artichokes, baked tomatoes, potatoes (but little).

Dessert.—Fruit, rice, tapioca, Indian puddings, custards (rice, snow, rennet, sponge-cake, floating

island), orange charlotte, blanc mange, baked and stewed apples and pears, baked bananas, grapes, and most ripe fruits if fresh. No rich sauces.

Beverages (drinks should mostly be taken near the end of and between meals).—Hot water before meals, milke Vichy, weak tea (one-half ounce to the pint), koumiss, weak cocoa, buttermilk, malted milk, leguminose cocoa, whey, equal parts of whey and unfermented grape-juice. Black coffee and lemon-juice on first rising. Tea and coffee disagree in many cases. Mineral waters: Carbonic water, Congress, Ballston, Kissingen, Apollinaris, Poland, Highland Spring.

Stimulants.—Claret, hock, whiskey or brandy, and water.

MUST AVOID.

Rich soups and chowders, all fried foods, hot or fresh bread, griddle-cakes, doughnuts, veal, pork, liver, kidney, hashes, stews, pickled and corned meats, preserved and potted meats, turkey, goose, duck, sausage, salmon, salt mackerel, bluefish, sardines, lobster, crabs, cabbage, cauliflower, radishes, cold slaw, cucumbers, parsnips, egg-plant, turnips, carrots, squash, oyster-plant, sweet potatoes, beets, pastry, pies, made dishes, nuts, dates, jams, dried and candied fruits, candies, cheese, strong tea, ice-water, malt liquors, spirituous liquors.

CHAPTER XXVIII

Dangers of City Life

While I am writing this chapter, Dr. T. Alexander MacNicall in speaking to the members of the American Medical Association makes the startling assertion that in the city of New York 70 per cent. out of thirty thousand school children are using alcoholic stimulants in varying quantities, and of the children found to have parents addicted to the use of alcohol, 71 per cent. show signs of degeneracy.

Under the caption of dangers of city life much could be written upon diseases not alcoholic and not connected in any way with alcohol, which would startle every person not a physician, because so little ever comes to light. The origin of many forms of nervous diseases is never clearly disclosed, because the history of the grandparent cannot be ascertained. I am not taking issue with Dr. MacNicall upon the subject, neither am I greatly surprised at his statement. Take the enormous number of school children in a city like New York with its mixture of nationalities and their environments, taking into consideration the manner in which thousands live, and the only wonder to me is that there is not more intemperance and crime; one wonders why more people are not driven to drink.

On a summer night you will find the long piers extending out into East River literally covered with mothers carrying their babies in their arms, seeking relief from the terrible heat of the Bowery and east side slums. Others will be found crowding into the parks in great numbers to get a breath of air not contaminated by dust and stench. Some say half of the world does not know how the other half lives. I say that less than 10 per cent. of our people have any conception whatever of the actual mode of living of the other 90 per cent.; of their comparatively few pleasures, and of the amount of suffering, self-denial, self-sacrifice made by this great mass.

Not all of the dangers of city life arise from intemperance, but in the squalid quarters of every great metropolis a gradual degeneration must constantly be taking place in the systems of those forced by their circumstances to breathe carbon dioxide, that poisonous gas, instead of pure air. Foul air leads to a loss of appetite and a disordered stomach, the craving of which often leads to strong drink.

The boy or girl from the country, coming into the city, should learn early that in order to maintain the same standard of health that he or she enjoyed in the country home, certain rules must be adopted relative to eating, sleeping, breathing and exercise that were not necessary in the country. The vitiated air of the city contains much less oxygen than the country air which is pure; and yet with the simple observance of a few rules, making this a part of the daily routine, much can be accom-

plished. Some people feel safe on reaching the city because they can reach a doctor so easily if they are taken sick. They take chances that they would never take in the country, which is all wrong. The excuse for being careless about one's self is explained in this way, "Oh, I haven't the time to think of myself." A little more thought of self, a little less thought of good times, of "making dates," of killing time, would make many an empty bed in hospital wards.

Being connected with a large city hospital, looking over the history of hundreds of persons admitted, I often marvel at the large number of people who are made victims of disease simply because they persist in doing the very things which they well know will undermine their health. On taking up your abode in a city, at once begin to make a study of the causes that lead to disease, and avoid such things. Select first of all the largest and sunniest room available, and remember the best is none too good. Remember, too, that epidemics and continued sickness follow certain localities just as sure as a stream of water follows a valley or depression in the earth. After choosing your room, determine on your mode of living. Keep your windows open, take regular exercise. So many simple methods are at hand today that there is no excuse for neglecting this important measure. Pay especial attention to your bathing, to your breathing, and especially to your diet. Even though you dine at a restaurant you can make use of that old axiom, "Know thyself." You can study your own digestive powers, you can soon learn

what agrees with you and what hurts you. You can learn with a little thought the causes of many of the ailments that city folk are afflicted with.

Live on plain and nourishing food, which need not necessarily be expensive. Among the many things which you should learn are these: Cultivate a desire to walk for exercise and walk right, for while you walk you can put into practice the art of breathing properly. The habit of lying down in a room filled with cigarette smoke, with the windows closed, reading books of no value, is a vicious habit which should be shunned. Open the windows, keep them open, go out into the open air for proper exercise in walking and breathing; stop short of fatigue. Get over the habit of thinking it is smart of you, as a young man, to go out and "fill up" on beer. A poorly nourished body alone craves for unnatural stimulation. Spend that money in becoming a member of the Young Men's Christian Association, join the young men's gymnasium, where proper exercise and proper bathing can be practiced and where the atmosphere is correct, both from a moral as well as from a hygienic standpoint, and avoid the late hours indulged in by many of our young men of today, and you will be surprised in a year or two to find how nicely you are getting along, not only physically but financially.

Choose your companions with the same care you would choose an apple or peach, and read the best books available.

If you are a girl the question is practically the same from a standpoint of choosing your compan-

ions and associates. I am sorry to say all the opportunities today that are open to young men do not exist in your case, yet as time goes on and conditions change, which they are doing most rapidly, an enlightened public conscience will by its influence create for you opportunities that will lessen many a burden which the working-girl now carries.

While you have a sound body and mind—and the two go together—you can get along nicely. Society, while it looks upon the weak with pitying eyes, has to operate in a commercial world which looks on humanity with an eye simply to business, and the first question is, "Have you always had, and do you now, enjoy good health?"

To the honest working-girl I want to say that behind the apparent gloom of our present industrial situation a sunlit future is hidden. No one but the mother and the physician knows the temptation and strain, both mental and physical, to which you are subjected. But education will mean better sanitary conditions for you in both factory and home. Hotels and boarding-houses will yet be established where you can live properly. While you are waiting, and are living and working under the existing circumstances, I want to say, "Guard well your health, for this is your capital of which you yourself are the chief custodian."

CHAPTER XXIX

Rheumatism, its Cause and Prevention

No disease is more dreaded today than rheumatism, and rightly so. It is a disease that has been called incurable, and in many instances that is, alas, true. Many theories have been advanced as to the causes of rheumatism. Among them are eating large quantities of the red meats, catching cold and the excessive use of alcoholic stimulants. While these are no doubt factors, still to my mind, based upon the experience of fourteen years in the general practice of medicine and upon conclusions drawn from my studies of those who were in a position to know, I think too little stress has been laid upon the most common cause of rheumatism, namely, getting overtired.

If you trace a history of a case of rheumatism to its start, you will find that the patient will tell you he never had rheumatism in his life until he had been two or three years without a vacation, or until he had been subjected to some prolonged, severe physical or mental strain. Take a ward in any hospital where there are many cases of rheumatism, acute, sub-acute and chronic, and you can invariably trace 80 per cent. of them back to a history of getting overtired and "run down." The free accumulation of uric acid in the system is

probably the cause of a large amount of our rheumatic affections, and it is only when the nervous and muscular systems are overtired that the heart, lungs and kidneys fail to do their work properly. Then these poisons, uric acid being the most common, having accumulated in the system by reason of the inactivity of the tissues, owing to the defective circulation traced back to the tired heart, rheumatism results.

To avoid rheumatism, avoid, first of all, allowing your general health to run down, and absolutely avoid the taking of alcoholic stimulants. To bring about the so-called natural condition of the overtired tissues, avoid eating too heartily. Because of the enfeebled digestive organs you cannot assimilate the food. Drink freely of cold water at all times except meal-times. If more cold water was drunk there would be less rheumatism. Avoid wetting the feet, take proper exercise, avoid sleeping in rooms with closed windows and you have gone a long way towards the prevention of this disease which, when once contracted, is often most difficult to shake off.

CHAPTER XXX

The Open-air School and its Wisdom

Once upon a time in a city of Greece, whose citizens were greatly interested in the nurture and training of children, the question arose as to whether they should build a great public school or open a playground. The casting vote was given in favor of the playground. Now, in the course of years it came to pass that the citizens of that city advanced so far beyond the rest of the human race that in all the years that have elapsed, even unto this day, the cities that have builded schools and neglected to open playgrounds have never been able to catch up. Reader, if you have children, educate them; but do not neglect their outdoor life. They need the sun and the soil as much as the plants in your garden or in the window-boxes in your windows. Do not hurry the little ones off to school. Let them play and romp in the open air until they are six years old at the very least.

Today, on a journey through the country, I saw a lad of five following his father at the plow. Shoeless and hatless over the uneven soil he sped as lively as a colt, exercising every muscle in his little body; filling his lungs with pure air, and thus enriching his blood at every step. He was laying the foundation for a constitution which will be his capital in the years to come.

If you would spoil a colt harness it to the plow when it is two years old, or drive it to the limit of its endurance. Knowledge of this fact lies behind all our child labor legislation. The law and humanity both demand that the child shall have an opportunity to develop along natural lines until the age of puberty is reached, and that the body shall not be stunted or the mind impaired by excessive work and study at the very sunrise of life.

Keep your child in the open air. Don't put chest protectors on him, but rather teach him to breathe properly. Teach him to eat properly, to masticate his food thoroughly, and to eat at regular intervals. Feed him on nourishing but not rich food; give him fruit instead of candy. Early teach him self-reliance and the importance of speaking the truth. Do not drive him, and when you promise him anything, see that he gets it, whether it is a penny or a whipping. Never deceive a child, and above all never frighten one. Parents ought to be ashamed in this generation to talk to children about a "bogy man." See that the child sleeps peacefully and naturally. If it cannot sleep with its mouth closed, call a physician at once and see if it has adenoids, and if so have them immediately removed. Your children, like Cornelia's, are your jewels and you should treasure them as you would so many perfectly matched pearls, for they are more precious than the finest gems that ever came from the mystic caves of ocean, and their little lives are more potential for good than all the colleges of Christendom. They are the future workingmen and workingwomen of America; the toilers who are to ex-

tend and preserve the civilization that we enjoy, and that they under God will render yet more beautiful and beneficent.

Teach your child cleanliness as early as you teach it to be virtuous and brave. Watch its little mouth and its first teeth. Teach it as soon as possible that care of the teeth is absolutely necessary if it would keep well. Tell it that disease germs lurk in an unclean mouth and that it is as necessary to cleanse the teeth as it is to cleanse the face. Give the child its own tooth-brush and renew it at frequent intervals. But do not rely upon a tooth-brush alone. An excellent mouth-wash like Dioxogen should be used frequently. No matter what your circumstances are, you are not too poor to keep clean, and keeping the mouth clean is absolutely essential to the physical welfare of the working people of this country. If you pay no attention to anything else I say in this book and will bear this fact in mind, you will have taken a long step towards preserving your bodily health and that of the little one God has given you. Don't neglect your teeth. Don't neglect their teeth. Keep them clean as you value their life. Keep your own clean if you want to live.

Give your child plenty of fresh air at night as well as in the daytime. Don't shut yourself up at night in a hot, stifling room. Don't sleep in the same room with your child if you can help it, but if you have to, see that as much fresh air as possible gets into the apartment. Remember foul air kills and fresh air makes alive, and if you want to live, open your windows at night. Of course,

I do not mean for you or the child to sleep directly in a draught, but do not fear the presence of fresh air in your sleeping chamber. Let the little one go bare-footed in summer and keep its feet dry and warm in winter. I once heard of an old chap who, when asked his creed, replied whimsically, "Do unto others as you would have them do to you; be honest and clever and I swear you'll be saved." In the same way, if you would keep your child's teeth clean, his lungs filled with pure air and his stomach nourished with plain and wholesome food, I affirm his body will be saved and strong, healthy manhood or womanhood assured.

Psychologists, and all who have much to do with child nature, realizing the advantages of outdoor life for the growing youngster, have endorsed unhesitatingly the open-air school and it is one of the movements that promise untold blessings to the coming generation. One of the sturdiest Celts I ever knew, a man who lived to be fully 80 years of age, was educated in the hedge schools of Ireland, and thousands of sturdy peasants in that bonny green isle obtained their only instruction under its beautiful trees. Germany's forest schools are the pride of the empire, and America is only waking up to the possibilities of these outdoor schools.

CHAPTER XXXI

Spitting and its Dangers

The first thing that attracts one's attention as one enters the grounds of a sanatorium or properly conducted hospital, is the entire absence of spittle of any kind, and as soon as a patient is encountered one observes he is carrying a sputum box around with him. This reason is plain. Tuberculosis is dangerous only when people having it are careless about their sputum, for in the spit lie the germs. As soon as the sputum becomes dry the germs are released and can then be blown about or carried upon the clothing almost any distance, and when these small particles are inhaled, infection may follow. Happily, as I write, many states are putting into operation laws making it a crime to expectorate promiscuously, either in public or private places.

One large manufacturing plant in my health district will not hire a man who chews tobacco, for they say he must spit, and not only may infect, but they will not tolerate this filthy habit. Dr. Flick says no one in health spits, except when he gets something nasty in the mouth, such as an insect or tobacco. Many people get into the habit of spitting and of so wasting the saliva, which is intended to keep the mouth clean.

Not only are the bacilli of tuberculosis spread by spitting, but the germs of pneumonia and of tonsilitis are spread in the same way. You may always notice after a dry spell, and after the wind has stirred up the germs in spreading them about in the air, that our epidemics of tonsilitis occur. These germs have been taken in through the nasal passages or through the mouth, and then located upon the tonsils, where they set up little ulcers called follicles, or follicular tonsilitis. These are little white ulcers which appear as small spots upon the tonsil or tonsilar tissue.

Again, if one spits promiscuously, he may infect a member of his family unconsciously. Many persons have tuberculosis without even knowing it. It has been said that 80 per cent. of all persons have tuberculosis, either latent or active; I mean by this many have tuberculosis without the symptoms except the cough. If persons who have what they term a hard cold are careless about their spittle, they may unconsciously infect other members of the household. The sputum of many a person having a bad cold has been found upon examination to contain the bacilli of tuberculosis.

A person may have typhoid fever not knowing it, be a carrier and infect many other people. The promiscuous habit of spitting in smoking-cars can, during the year, infect many persons with tuberculosis. Every smoking-car should have proper receptacles for expectoration partially filled with a strong disinfecting fluid and should enforce the law to the letter. Many of our "smokers" today are veritable hot-beds for the dissemination of disease.

In many cases they are overheated, poorly ventilated, carelessly looked after, and afford just the right place for germs to breed in. It is my opinion that up to the present time we are not sure just how many kinds of disease are present in the spittle, for we do not examine it until we look for disease because a person has fallen ill. I want to see the time when the question of spitting will receive more careful attention from the masses, when they will not only stop spitting because it is a filthy habit, but because the time will come when they will realize that they may unconsciously infect innocent persons.

A short time ago a man came to me with the story of his wife having died of consumption after having been sick only three months. He came to me with the history of having been treated for stomach trouble for eighteen months. He said that he had a hard cough all this time and that he did raise considerably, and was not careful of what he did raise. The history of his case after an examination of his sputum, finding it loaded with bacilli, led me to believe that this man infected his wife because he stated that he had always "spit anywhere he felt like," and was not careful.

When municipalities and states rigidly enforce the laws relative to spitting, when all owners of public buildings, through their agents, do the same, when all railroad companies make this spitting act punishable by arrest and fine, when owners of factories and stores live up to the law,—then Consumption will have received a death-blow!

CHAPTER XXXII

Nervousness, its Causes and its Prevention

The American people are fast becoming a nation of neurasthenics. By this term, I mean that nervousness as a disease is not only alarmingly prevalent, but that it is sapping the vitality of the present generation at a rate that astonishes the investigator, and its influence on the coming generation must, in the ordinary course of events, be transmitted.

In 500 cases coming to my office for treatment in the last five years, 408 being women and 92 men, 450 showed signs of nervousness in some form. Of these 210 were mothers, 200 were unmarried and ninety were men (65 single and 25 married). If the average practitioner will stop to make note of the condition of the people he is called upon to treat, he will be amazed at the percentage of nervous wrecks. It is more prevalent in the young and those of middle age than in those of advanced years. Modern nervousness is the most common of all diseases, and unless checked must leave its mark upon the offspring of the present generation.

WHAT CAUSES NERVOUSNESS?

In an analysis of the cases enumerated above, in 100 cases it was caused by an insufficient amount of

rest; in 51 cases it was due to indiscretion in diet; in 30 cases, lack of proper exercise; in 34 cases, lack of proper amount of fresh air; in 25 cases by the use of alcoholic stimulants.

HOW CAN IT BE AVOIDED?

First of all, *not* by the use of drugs, *not* by the use of artificial stimulants, but by applying system to our lives. Our forefathers were not nervous, because they lived under a system, because they had regular hours for retiring, because they were fond of walking, because they took little or no medicine, because they lived on plain and simple food, properly cooked. Overdressing and impure air deprive the vital organs of the opportunity of doing their work. The inactivity of the bowels and kidneys results from improper food, water and air. Worry, too, was eliminated from our grandfather's list. They did not have our present school system with all its fads and follies to contend with; they were obliged to take proper and systematic exercise. The average physician is nervous because he does the very things he tells his patient not to do, because he is a transgressor when it comes to a question of diet, exercise and fresh air.

EATING WHEN TIRED

This is one of the most common causes of nervousness. The stomach is a muscle, and food is digested by a churning motion and by the proper

elimination of the gastric juices, but when they are not working properly—and they will not when the system is tired—undigested food becomes a poison to the general system. The wearing of too many clothes causes weakness and consequently nervousness. The skin is the most vital part of our anatomy. *Why?* Because, when unencumbered by too much clothing, it carries off waste and poisonous materials. This poison, unable to escape through the skin, is thrown upon some other organ which has already a duty to perform.

SUMMARY

Overcrowded curriculum in our public schools; alcoholic stimulants; impure air; overeating; the drinking of too little water; insufficient amount of rest; overdressing; constipation; faulty mental attitudes called "worry;" improper bathing; lack of proper and systematic exercise.

These are the prime causes of nervousness, and with few exceptions, these can all be avoided if a judicious use is made of the mental faculties. In other words, if we wish for healthy babies, if we wish for healthy offspring, we must get back to a simple life. What we want is healthy offspring, not tubercular. Instead of sanitariums, a proper working day both for the mother and father, abstinence from all forms of dissipation, regular exercise and freedom from worry are what we need to prevent the weakened muscular system and weakened mentality we dub "nervousness."

CHAPTER XXXIII

Diphtheria—What Causes it? What Prevents it?

Nothing strikes terror so quickly to the heart of a father as to learn that his child has diphtheria, but the danger is not in learning this fact, it is rather in neglecting to learn where the danger lies. Why is this true? For several reasons; first and foremost is that an unrecognized case of diphtheria is capable of infecting other children in the family and neighborhood. Many a child has lost his life from diphtheria and the mother has said after his death, "Oh, he played with the little boy across the street who had a sore throat, but he wasn't sick."

Now, first of all, I want to say that diphtheria is one of the most deceptive diseases and many times cannot be told until a culture is taken. It may be treated for a simple sore throat or a simple cold, and just here is where the danger lies. For in a mild case in the beginning the child may simply suffer from a little stiffness of the neck with the ordinary symptoms of a cold, perhaps not even fever to start with, and swallowing is not interfered with to any great extent, but—there is one point sometimes overlooked, even by the physicians, and that is this—*always look into the throat!*

If the child seems tired, shows no desire to play, complains of chilly sensations, says the neck is stiff or aches, look at the throat. If in addition to the above symptoms the throat seems red and inflamed, put the child at once by itself and call a physician. Don't think you cannot afford to do this; you cannot afford to neglect it, first for your child's sake and second for the sake of the brother and sister and for the neighborhood. In these days there is no excuse for neglect, for any physician will be glad to make the culture for you. Isolate at once, call a physician, and follow his directions minutely and you have half the battle won. The treatment of diphtheria, today, is anti-toxin. If the case is mild the simple using of this agent, followed by careful nursing, is the whole treatment. If the case is severe, there is no place quite so good as the Isolation Hospital, where nurses experienced in this work are readily at hand as well as competent physicians. Many a child's life has been saved by the prompt act of putting a tube in the child's throat, that it may have space to breathe.

This disease has been robbed of many of its terrors since the discovery of anti-toxin, and since 1880, when Dr. Joseph O. Dwyer began the use of instruments called intubation instruments. The life of many a child has been saved by being given a place to breathe, otherwise it must have strangled. I have always felt that Dr. Dwyer rendered to humanity one of the greatest blessings ever transmitted. It is hard enough to see a little child die naturally, but it is an awful spectacle to see it strangle to death. I am glad to say that

I have not been obliged to witness such a spectacle, for when I became a physician his discovery was being put into use by many physicians.

NOW AS TO ITS CAUSES

The question of just where diphtheria originates has never been absolutely settled, but studies of epidemics have shown to my satisfaction that it is a disease of filth and filthy surroundings. Where there have been a number of cases in any one city or town, it is always in the poorer sections it claims most of its victims. And while the most robust child may be attacked, it spends its fury among those with poor housing facilities and whose nutrition is none too good. Here again the question of sunlight, plenty of fresh air, plenty of simple food, cleanliness, not only of the house but of the body, are the most prominent features to carry out.

Remember, the disease is contagious. Do not let a child kiss you or kiss another with a sore throat. Place him by himself in a room, do not take his breath, be careful about his cough, lest he cough into the face of you or others. Let him have only his own drinking-cup and towels. Look for the disease often in the fall and winter months. If you hear of its breaking out in a school-room, keep your children from school for a couple of weeks. If you learn of its being in the neighborhood, try and learn from whom the people suffering from it are taking their milk, and if you are satisfied that several families have it and are taking their milk of one milkman, report same to local board of

health at once, asking for an examination of this milk; and if the local board of health does not stop the sale of the milk, you stop the sale of it at your house for six weeks at least.

In closing, I want to say again that it is a deceptive disease, and that whenever any departure from normal health is noticed, have a culture made of your child's throat, particularly if it be in the seasons of which I have spoken, remembering that if taken early it can be easily cured, but if let alone it is a dangerous, poisonous disease which, if eventually cured, leaves the patient many times an invalid for the rest of his life.

CHAPTER XXXIV

Care of the Child from Birth until the Fourteenth Year

As soon as the first child is born the responsibilities of a mother begin. Since time began it has always brought about immediate anxiety which did not exist previous to the time when this precious burden was placed in the hands of the parents. Someone has called them "troublesome comforts," some one, "old-fashioned things." A well-known physician of London was chided by the mother because to her his ideas seemed old-fashioned, to which he replied, "Well, lady, babies are old-fashioned things anyhow."

Among the rich and well-to-do a large share of the anxiety that falls to the lot of the common people is absent. The wife of a wealthy man who had been a mother for seven months told me she had seen baby but eight times in this period; but the average mother rarely ever has baby out of her sight until the second year is reached. For years infant mortality has been of serious concern, not only to the parents, but to municipalities, governments, philanthropists, sanitarians and social workers. It is only within recent years, however, that the great mass of people have awakened to the

fact that hundreds of thousands of infants are dying needlessly each year.

It is said on good authority that 375,000 children in this country perish during the first year of life. In 1908, in New York city, 16,230 infants died during the first year.

The lives of hundreds of infants are offered up each year because Dame Fashion decrees that it is not fashionable to nurse a child. Mothers, I want to say to you, whenever your health permits, do your duty toward your child and bring him up as nature intended you should. Chapter after chapter has been written upon the preparation of babies' food, but I have yet to find in any medical book a chapter devoted to arguments showing why the mother should nurse her child. There has never been a food, there never will be a food, that can take the place of the milk coming from the breast of a healthy mother, and again, the vital and mental forces of a child reared on artificial food will never reach the degree of development that will compare with the baby fed at the breast. Some of the energy now being expended upon the pure milk problem would bear more fruit if it was spent in teaching the mother how to maintain her bodily health and why it is essential she should do so. Attention to the matter of cleanliness, bathing, eating, sleeping, rest and sunshine, and a little more maternal affection, would reduce the infant mortality one-half in the next decade. However, I am not writing a treatise on diseases of children, but my aim is to lay down a few simple rules; first, to the mother while she is carrying the child and, second,

as I have indicated, the care of the child from birth until the fourteenth year.

THE PREGNANT WOMAN

First of all, avoid all excesses, avoid getting overtired. Take the fifteen minutes noonday rest if more cannot be obtained. Try, under all circumstances, to avoid excitement of any kind. Pay especial attention to the diet; do not overeat. Follow out religiously the axiom of proper exercise, walk a good deal and bathe properly. The chapter in this book on bathing will give you ample instruction along this line. Avoid constipation, hold your temper at all times, and get all the fresh air, both day and night, that you can. Sleep in a room by yourself whenever you can. Avoid looking at all unpleasant things; attend as many musical entertainments as possible; choose congenial and jovial companions. Avoid all visits to the sick, to hospitals, to friends who are unfortunate; remember that the temperament of a generation to come is in your hands; let the dead past bury the dead.

CARE OF THE CHILD

The proper way to bathe a child is the first thing a mother should know; many so-called nurses have yet to learn this art. Immediately after birth, a child should be given a full bath, and for this reason the so-called foot-tub should always be at hand. Have your water at 94 degrees or 95 degrees; always test with a thermometer. A nurse who can-

not use a thermometer ought never to be allowed in the room of a woman who has borne a child. Wash the little one quickly, leaving in the bath but four minutes; when taken out rub briskly; have the room at 75 degrees, or even warmer if possible; dress quickly and roll in a woolen blanket. In washing, particular attention should be paid to the eyes; they should be washed thoroughly with tepid water and watched carefully. Ask the nurse to have the physician look at baby's eyes at each visit.

Especial attention should be paid to the mouth. Sometimes it is covered with whites, which is known as thrush, and this can be easily removed by using a weak solution of peroxide of hydrogen, one-half teaspoonful to a cup of water. Wash carefully several times a day. In bathing the child avoid strong soaps and too vigorous rubbing, either during or after the bath. If the skin appears to be sensitive and chafing is easily produced, use plenty of one of the dusting powders. Extreme care should be taken of the buttocks; this is a common place for chafing, as the parts are often soiled, therefore great pains should be taken that all napkins be removed as soon as they are soiled and the parts kept clean and dry. If the parts should become chafed, bathe with a little sea-salt and water. Muslin or linen should be worn next to the skin.

The child should not be dressed too warmly; the chest is best covered with Canton flannel, and the abdomen supported by a flannel band which should be pinned not too tightly. In perfectly healthy infants this band may be replaced after three

months by a cotton band. During the extremely hot weather, dress the child lightly, do not overburden it with heavy clothing. This is one of the most common errors in the care of a child. Always avoid heavy clothing while in the house; children are naturally warm-blooded, and for this reason their blood easily becomes overheated while at play. While in the street they should be protected with warm clothing and the feet should always be kept dry.

Use as large a room as possible for the nursery and have it well ventilated; the more sunshine you have, the better. The temperature of this room is best at 66 or 68 degrees; never should the thermometer be allowed to go over 75 degrees. During the night in the first three months it should not go below 64 degrees; after this time it may go as low even as 50 degrees, providing draughts of all kinds are avoided. The nursery, or room in which the child is kept, should be thoroughly aired at least three times a day. If the room is kept too warm it at once begins to tell upon the general health of the child. It often becomes pale, stops gaining weight, takes cold easily. These conditions readily lead up to a rapid, serious illness.

I would always take a child, in the spring of the year and in the fall, into the open air after it is five weeks old. In summertime it may be taken out any time after the second week. Airing of the room should begin when the child is six weeks old, and at two months it may be taken out on pleasant days if kept in the sun. Sharp winds and extremely cold weather when the ground is covered with

snow and slush should not be chosen as days for airing the baby. When placed in the carriage see that it is properly protected from draughts and that the sun is not allowed to shine directly into the baby's eyes. Some children take cold upon the slightest provocation; they are better kept in cool rooms and especially when they are sleeping. They should not be covered too warm so as to cause perspiration. Every morning I would bathe the chest and spine with cold water at about 65 degrees Fahrenheit. In giving this bath the child may stand in a tub containing warm water, and the body should be gone over thoroughly with a soft towel or linen, using a temperature of water at about 70 degrees.

Children are often nursed or fed too often. I would not allow a child to be fed either at the breast or from the bottle oftener than once in two hours, and I would not allow him to nurse when at the breast over fifteen minutes at each nursing. Place him first at one breast and then at the other. The nipples should be kept clean and should be washed after each nursing. The mother should drink plenty of liquid food and should eat nourishing food, including meat, vegetables and fruit, ordinarily no wine or beer.

Avoid getting nervous, avoid fatigue or passion, for these easily tell upon a child. A perfectly healthy child should sleep from one to two hours after each nursing. If in nursing the child, or if in bringing it up on the so-called bottle it does not gain in weight, sleeps irregularly and suffers from colic and the movements contain undigested food,

it is a pretty sure sign that its nourishment is not agreeing with it. The question is often asked, "Can I nurse a child and feed it at the same time?" There is no objection to this providing it is fed through the night to allow the mother to get her sleep.

The question of weaning a child is a much-mooted question. Some authorities believe that the ninth or tenth month is the proper time. Personally, I believe that when the mother is well and strong and the child seems to be doing well, it is better to nurse it over the second summer. This, however, should be left entirely with the physician in charge. As I said in the beginning there is no food that takes the place of mother's milk, and whenever it is possible and the health of the mother seems not to suffer, she and the child are better off when the child is nursed. When it becomes necessary, by reason of ill health or some unforeseen reason, to remove the child entirely from the breast, the choice of food becomes a very delicate question. Today there are many excellent foods and numerous formulas for every preparation. I think, however, it is always well to consult your physician whenever it seems necessary to use a substitute for mother's milk.

Whenever cow's milk is used it should be sterilized. This is best done by using an Arnold sterilizer and following out the instructions given with each one of these apparatus. Each bottle, as fast as it is emptied, should be thoroughly washed in hot soap-suds and water and then placed for ten minutes in boiling water. As for the choice in

nipples, I prefer a straight nipple that slips over the neck of the bottle. The nipples should be kept, while not in use, in a solution of borax and carefully washed with boiling water four or five times a day, particularly in the warm weather. As I said before, during the first month the child should not be fed oftener than once in two hours and about three times during the night. This regularity gets the child into a habit of sleeping at regular intervals, and when the child appears to be resting do not awaken it to give it its food.

Whenever the child takes the nourishment from the bottle very quickly and cries when it is taken away, then we have good reason to believe that the child is not getting proper nourishment. After the eleventh month the child may be fed a little in addition to its milk or prepared food. A little beef-juice and the whites of eggs seem always in my hands to be satisfactory. After a child is three years of age it had better be kept on five meals a day. The question is often asked, "What should be the hours for feeding at this period of life?" This depends absolutely upon circumstances. I should say, however, that it might be fed, if it is awake, at 6 a.m., at 9.30 a.m., at 1.30 p.m., 4.30 p.m., and at 7.30 p.m. "What should it be fed at these meals?" is often asked. The diet should be simple. Cereals, oatmeal, rice and hominy may be given. I have seen, however, perfectly healthy children who seem to eat nearly everything and it does not seem to hurt them. In other words, with the child as with the adult, every stomach is a law unto itself.

During the third or fourth year the diet should

still be simple. Half of an orange may be given, and oatmeal. Milk may be given freely, small pieces of steak and chicken, and potatoes. Avoid giving the child fresh bread, and I believe that bananas are the cause of more spasms than any other one thing. I would avoid giving a child dried beef, fried liver or bacon and the dressings from different roasts, because these are generally too rich. If potatoes are given they should always be roasted. Celery may be given. Green corn at this age I would avoid. I would not give hot bread, buckwheat or griddle cakes, and I would avoid pastries as far as possible. Candies, fruits and preserved fruits, tea and coffee, I would avoid.

Begin by teaching your child to take plenty of time to eat, for this is one of the most important things which he should be taught. In all acute illnesses, such as fever, severe colds, or in very hot weather whenever the slightest indisposition is noticed in the condition of the child, it is well to withhold all food for a period of five or six hours, that the stomach may be able to empty itself thoroughly. The child's bowels should always be watched, and a healthy child after the second or third year should have three or four stools each day.

Sometimes the question is asked, "Should the child sleep in the same bed with its mother?" I would say that whenever this can be avoided, *No!* The child's bed should be a mattress, never a feather bed, and whenever possible hair pillows should be used instead of feathers. When the child is put to sleep the room should be darkened, and after it has been fed, it should be placed in the

quietest room possible with plenty of air, with the windows open, being careful to avoid draughts. Weak, sickly and nervous children get along finely when they are allowed to sleep on the piazza or out of doors, and always when possible in the yard, when the proper shade can be obtained. The child never sleeps too much except when it is severely ill, or except when given such things as soothing syrups which contain opiates.

When children begin teething they are very often fretful and their sleep is poor. They may lose their appetite and there is salivation and drooling, and sometimes they may have fever; there may be nausea and vomiting, with food in the stools which has not been digested. All these symptoms differ in different children with different temperaments. I have known a child to cut from twelve to fourteen teeth without the least disturbance. I have known another, upon the advent of the first tooth, to have fever, restlessness, vomiting and indigestion.

As soon as the child arrives at the age of ten months, then I would allow it to sit alone, but great care must be exercised, that the child may not commence to walk too early. If this is allowed it brings about a bending or crooked condition of the limbs, a condition known as bow-legged.

If for any reason, either by overeating or from any cause, the child should have a convulsion, before the physician arrives, place the child at once in a warm bath and then roll it in a large towel which has been dipped in mustard and water, one heaping tablespoonful of mustard to two quarts of warm water. Colic is a condition which comes on

suddenly and there is drawing up of the feet and the abdomen is usually tense and hard. In this case it is always well to give an injection; if the child is four years of age, say a teacupful of warm water to which fifteen drops of turpentine have been added. Then apply to the abdomen an allspice poultice, which is made by using a quarter of a pound of allspice mixed with hot water, the same as when you mix a mustard paste, putting this between cheesecloth or old linen and applying it across the abdomen. I would then give twenty-five drops of elixir catnip and fennel in four teaspoonfuls of hot water.

Ofttimes a child will cry from earache. The pain in this case is usually very severe and the child will often place the hand to the ear. In this case it is always well to have a few drops prescribed by your physician in the house, that you may drop into the ear. Hot poultices or a hot-water bag may always be tried. Often the child will awaken suddenly in the night with a barking cough and it appears difficult for it to get its breath. This is usually simple croup. It is not dangerous and can often be relieved at once by application of cloths wrung out in cold water and wrapped around the throat. An old remedy and one which is helpful is to give fifteen drops of syrup of ipecac every fifteen minutes until free vomiting occurs.

The question of contagious diseases among children I shall not touch upon in this chapter, for I have taken them up separately in this work under separate headings. Their onset does not differ materially in the child from that in the adult.

All through the life of the child there is a tendency upon the part of parents to spoil the child by humoring him, allowing him to have those things which they know are not good for him to eat or to drink. Careful attention to the child's diet, careful attention to his sleeping-room and to his bathing, plenty of plain and simple food and proper exercise, systematically and judiciously carried out, all tend toward building a healthy constitution and a rugged body. It is very easy to spoil a child by allowing him to have his own way, and the old axiom, "Spare the rod and spoil the child," applies in nearly every case. I would commence with the child, whether it be a boy or girl, at the age of eight years. I would teach him or her the importance of breathing properly, the importance of learning to sleep with the mouth closed. If the child cannot sleep peaceably with the mouth closed, then there is usually some obstruction which should be looked to and removed. Teach the child to walk properly and to stand erect, and each day to carry out a systematic method of lung baths; this is done by having the child stand erect in a room where the windows are open, closing the lips tightly and drawing in the breath until the lungs are thoroughly filled, then allowing it to escape through the nose. Take three or four ordinary breaths and then repeat in the same manner as before, repeating this exercise from three to five times each morning. I would early teach the child simple exercises with the dumb-bells. Both boy and girl, after they have reached the age of ten years,

should be taught how to swim and how to row, and whenever the circumstances permit, how to ride horseback. They should be taught how to walk properly, and whenever it is consistent with the circumstances of the family, at twelve years of age they should be placed in a gymnasium.

There are in the lining, particularly at the upper part known as the apex of the lung, a large number of unused cells which the air never reaches unless proper and systematic breathing exercises are carried out. I would watch for any lumps in the side of the neck, and whenever these make their appearance I would consult my physician. If there is any obstruction whatever to free and natural breathing, always have the child's nose examined for adenoid growths; for large tonsils and adenoid growths are the easiest spots for the bacilli of tuberculosis to lodge, as well as the germs of many other diseases to which the child is subjected.

Teach the child early to be self-reliant. The expression that a boy of twelve years is a "little man" is one of which you should be justly proud. Self-reliance must be early taught to the child, be it boy or girl. If taken early it is easy to acquire as the years go on. If you start a child at eight teaching him to rely upon himself in the question of eating, drinking, bathing, breathing and exercise, by the time he reaches his fourteenth year he will have formed a habit which it will be very easy to carry out as the years go on. There is no need of the narrow chests and the stooping shoulders and the slouchy gait so often noticed in the children born

both in the city and in the country. All these things are products of bad habits formed in early childhood and allowed to continue as the years go on.

CHAPTER XXXV

Scarlet Fever a Dangerous Disease, and how to Prevent it

In few diseases are preventive measures as easily carried out as in scarlet fever. Because this disease is so dangerous, because it has so many complications, because it leaves in its wake so many permanent injuries, it is of the utmost importance that it should be prevented whenever possible. The most important measure in the prevention of scarlet fever is the isolation of the sick. The isolation should be absolute and should apply to nurse as well as to the sick child. A room in which this can be accomplished most perfectly should be selected. All hangings, draperies and unnecessary furniture should be removed. One person should be selected to communicate between the nurse and family. Many a child has lost his hearing and gone through life a cripple, simply because care was not exercised. It is criminal to keep a case of scarlet fever and not report it to the Board of Health. I shall point out in this chapter some of the complications of this disease and the reason why the sick, rich and poor alike, should exercise the utmost precaution in this dreaded disease. Whenever practical all cases should be sent at once to the isolation hospital. It is a preventive dis-

ease and one that means much to the workingman. It is particularly dangerous when contracted by an adult. It is the plain duty of your family physician to point out these facts to you.

The doctor's visits should be as short as are consistent with good treatment. He should never enter a sick-room and then mingle with other members of the family. The period of isolation should not be less than forty days, and much longer if peeling continues. Upon giving up quarantine, the child should be thoroughly bathed with soap and water, and then with a solution of corrosive sublimate, one to five thousand. One gallon of this can be obtained in a drug store for ten cents.

No carpets should be left in the room, and those removed should be thoroughly disinfected with boiling water or steam. The mattress used should be at once destroyed. The room should be thoroughly washed, floor, ceiling and walls. It is certainly your duty to listen to the instructions which should be minutely given by your physician. The death rate from scarlet fever can easily be reduced one-half in the next ten years if your family physician, yourself and the local Board of Health coöperate.

The complications of scarlet fever which are most likely to occur, and which first make their appearance, are a disturbance with the kidney. Often, when the fever is at its height, traces of albumin may be found in the urine. Kidney affections are most common, however, in the second or third week. And they may develop after a very mild attack. I have found that when they develop

in the second week they are apt to be serious. The urine is apt to be suppressed, a small quantity may be passed, which is dark and bloody, laden with albumin and tube-casts. Vomiting is constant. Convulsions usually occur and the child may die with symptoms of acute uræmia.

Sometimes the symptoms are not so severe. There is a puffy appearance of the eye-lids with slight swelling of the feet. These cases may drag on and become chronic, or the patient may succumb to uræmic accidents.

EAR COMPLICATIONS

These are common and ofttimes serious. They are due to the extension of the inflammation from the throat through the eustachian tubes. This is a most frequent cause of deafness. In other instances there is suppuration or pus formation in mastoid cell. Sometimes, even, abscess of the brain may follow these complications.

HEART COMPLICATIONS

Simple endocarditis is not uncommon, and many cases of chronic valvular disease originate probably in the latent endocarditis during this disease.

ADNITIS

In very mild cases of scarlet fever, many of the glands of the neck may be swollen. Acute inflammation may occur, leading to widespread destruction of tissue, and fatal hemorrhage may ensue.

may develop as a complication. Sudden convulsions may occur; even paralysis with a wasting of the limbs may appear as a result of these nervous symptoms.

I only mention the complications and the dangers of this disease, that the parent may understand fully that it is a disease that needs the watchful care and advice of a physician. A great mistake is often made in trying to treat these cases yourself. Because the child does not appear to be very sick is no reason why you should try to treat the case yourself. Sometimes an apparently mild case may develop all the symptoms which I have mentioned above, and because of your neglect to call medical aid, your child may go through life with his hearing permanently impaired and a kidney damaged beyond repair. Much of the heart disease found in children can be traced to a mild untreated case.

CHAPTER XXXVI

Breathing Exercises and their Value to Health

All muscular exercise is followed by an increase in the ventilation of the lungs. Of the many people who are particular to bathe each day, how comparatively few pay any attention to lung baths or breathing exercises. A working muscle needs a larger quantity of oxygen, and this should be in proportion to the amount of use it receives, and as the lung is constantly active it requires a large amount of oxygen. This not only carries nutrition to the blood, but it takes away carbon dioxide more freely, which is a poison to the general system.

If there is one law of health which has been established at the present day, this is the law beyond question: There are in the normal lung a large number of cells known as reserve cells. These cells are seldom used by the average person, because very few breathing exercises are taken. It is my opinion that pulmonary gymnastics, breathing exercises, will have to be taught, not only to individuals, but such teaching must eventually form a part of our school curriculum. I would especially impress upon every reader of this chapter at least to give these few principles a careful and systematic trial. The results for good to his or her general health will soon be apparent.

People who neglect to take proper and systematic exercises in breathing deprive their system of the most important element in its nutrition. Oxygen, fresh air, carried into the lungs, deposits oxygen in the blood, building up the red blood corpuscles that carry strength to every part of the body. The breath is the life. Without food a man may live forty to seventy days, without fluids he can live several days, without air he will die in a few minutes. The more we breathe, properly expanding every portion of the lungs, the more oxygen we inhale; the more oxygen, the more life. The men at the top are almost always the big-chested ones. The greatest men of all times, statesmen and warriors, were all deep breathers; here we have Napoleon, Webster, Gladstone and Brooks.

What does proper breathing do? It increases the nutrition of the body, it increases the elimination of waste products. An immense amount of energy and endurance is brought about because the poisonous gases are properly carried off, and because nutrition in every tissue of the body is improved. The figure is restored to its normal lines, the chest is deepened, a gain in weight is noticed. Free use of the lungs always means strength. The mouse breathes 150 times per minute, the elephant only six. The rule holds good in human beings: a high respiration means shallow breathing, shallow breathing always means a loss of strength. Deep-breathing increases our self-control, self-realization, self-expression. Yet normal and natural breathing among civilized people is rare.

The present system of dress and tight-lacing among women prevents the free use of the lungs. In natural breathing the spine is straight, the body is held erect, and the entire trunk, chest, back and abdominal walls expand when we take in fresh air and contract when the air is expelled. Breathing is the most important act of our lives. Proper breathing means a change in one's whole being. It means an increase in bodily weight, it means a fresh tint to the cheeks, it means an elastic step, and above all it means a well-balanced nervous system, which is the keynote and which is necessary if we would be successful in any walk in life.

We must not be nervous, but now you are going to ask me, "How shall I take these exercises of which you speak?" Now, if I gave you a list of complicated movements to learn, if I gave you movements which would take a great deal of time, you would not follow them, but those I am going to give you will be so simple that there will be no excuse for not putting them into action.

EXERCISE NO. 1

Stand with the heels together, head erect, shoulders pushed back. Now close the lips, take a deep breath and count to yourself twenty, drawing in air all the time. While you are doing this, gently raise the arms until they are at a right angle with the body; now lower them slowly until you have emptied the lungs. Then, begin again, this time carrying both arms into the air, bringing them together, palms touching over the head. Now,

lower them slowly and at the same time empty the lungs. Repeat this four or five times before an open window, morning and night, and you will be surprised to find how much you have gained in lung expansion in a short time. This exercise brings into action nearly every muscle of the trunk. Repeat the same movement. This time don't bring the hands together, but turn them palms outward, throw the head back, and stretch as if you would touch the ceiling.

EXERCISE NO. 2

Without any apparent effort stand straight, place the hands upon the hips, allow the head to fall on the chest and then allow the chest to fall together, as it were. Now commence to take a long, deep breath, inhaling slowly and steadily, all this time with the lips tightly closed; count to yourself until you have counted forty, and then slowly exhale as before.

EXERCISE NO. 3

Place the back of the hands just under the shoulder blades, bend slightly forward while you draw in the breath, filling the lungs; then keeping the hands in the same position, raise the head, bending it backward; at the same time empty the lungs slowly.

You will notice that I have given but three very simple rules for deep breathing. Always remember in carrying out these exercises to take plenty of time, both in the act of inspiration (breathing in)

and in exhaling (emptying the lungs). The every-day practice of these rules will result in a steady increase in the capacity, shape and flexibility of the chest, it will impart new qualities to singing and speaking, but the main and most important thing that it will do is, it will put into exercise, build up and make strong the apex or top of the lung, which by reason of its non-use is the most frequent seat of consumption.

CHAPTER XXXVII

Worry and its Effect upon the Health

"Laugh, and the world laughs with you; weep, and you weep alone," has the philosophy of the ages behind it. Men and women do not like to associate with those who are perpetually bemoaning their hard luck, and they turn with eager haste to the clown, the jester and the imp. Not until the last few years, however, have men come to realize that fear, anxiety, depression, all that is summed up in the little word worry, had a positively baneful effect on the physical system. Emerson urged, "Fear nothing but fear," and he never phrased four truer words. Ninety per cent. of all our ills and hardships are imaginary; the hardest obstacles we have to overcome in life are shadows, and the world of fact contains more ghosts than the world of fancy.

Unfortunately, the more ambitious a man is the more likely he is to worry. The phlegmatic chap who wakes up some morning and finds himself at the top of the ladder, accepts his position philosophically. Not so with the ambitious man who has struggled upward through the night. He knows what it has cost in blood and sweat and tears to gain his place, and he trembles lest he lose it. The

great trouble with the chap who plots and plans and schemes to get on is the fact that he feels that everyone else is planning, plotting and scheming to get honor ahead of him. Nothing is gained by undue fear or doubt as to the outcome. A cheerful faith, a serene confidence in yourself and trust in your fellow-man is absolutely essential to a healthy as well as a well-ordered life.

When I was a senior at college, I more than once heard a man in my class express doubt as to his ability to matriculate. "How are we ever going to get through?" he would say. When confronted by that problem I always pointed with assurance to the men in the preceding classes. "In what respect," I would ask, "are they superior to us? They performed their work and received their diplomas, and so shall we." And so we did, doubting Thomases and all.

It is so in life. My reader, the duties you are performing, the crosses you are bearing, the obstacles you are overcoming, have all been performed, borne and overcome by men and women for thousands of years before you essayed them. They all discharged them, and so can you. There is nothing in the tomorrow that can injure you if you are not willing to let it. To my sick friends, in particular, I want to impress upon you by all that you hold dear not to worry. If for any reason you are laid on a bed of illness, call a good physician, give your case into his hands, tell him freely and fully all about yourself, take whatever medicines he prescribes faithfully, and trust him utterly. Worrying because you do not immediately recover

will undo all the good that your doctor can possibly do and will render void and of no effect the most potent remedies and the most powerful drugs.

Don't worry! It not only undermines the health, but it saps the will and so confuses and dazes and shocks the intellect, through dread of this, that and the other calamity, that it super-induces insanity. We have banished the witches and the ghosts and the "bogy man," but King Worry afflicts us more than the habitants of a thousand Endors.

New York State does not know what to do with her insane patients, fully one-quarter of whom owe their unfortunate position directly to worry and to nothing else. Our forefathers built up healthy bodies and rugged constitutions by trust in God and faith in themselves. They believed there was room enough on this continent to set up a church without a bishop, and a state without a king, and although they were menaced by the Stuarts in England, and the Indians in America, they succeeded in planting in this wilderness the mightiest democracy the world has ever known. Plain, simple and homely lives they lived, rough knocks they sustained, few comforts they knew, but their jails were few and far between and among them no insane hospital was known. Whatever else the Puritans did, they didn't worry.

Not only the insane hospitals, but the operating rooms of all our hospitals are filled with worry victims, brought there by excessive strain due to unnatural and uncalled-for labor in some field of effort. Do not furnish the material for the lance and

scalpel by worrying. Take things easy. Do not bolt your food; do not run for the cars; do not neglect a cold; do not dissipate either in eating or drinking, but above all, as you value your health, your strength, your sanity itself, *do not worry!*

CHAPTER XXXVIII

Heart Disease, its Cause and Prevention

The term heart disease is so broad that I shall not attempt to point out the various forms of diseases of the heart, but shall endeavor to make plain some of the most common causes of diseases of the heart and the method of preventing the same. There is no doubt that disease of this organ in one of its forms becomes more prevalent year by year, that in many cases it is never recognized until it is too late, when the treatment becomes simply symptomatic. By this I mean that after the disease actually exists, the only treatment is to treat the symptoms as they arise. The enormous mortality from disease of the heart is best shown by a study of vital statistics in 1907. The recorded death rate from heart disease in the United States was 59,157, so it is easy to see that this disease carries off a large army annually. Also diseases of the heart place an army of working people annually in a condition where they cease to become bread-winners, but become great sufferers and ofttimes a burden, not only upon the family, but upon the community.

I remember well an instance of a patient in one of our city hospitals who was cared for for a period of more than eleven years. It is a disease

that creeps on sometimes without the patient even knowing that he or she is afflicted with it, until it is too late to repair damages already done to not only the heart, but the general system. It is becoming more common year by year and will increase under the strain consequent to our American civilization.

ITS CAUSES ARE NUMEROUS

The most frequent cause of heart disease is the excessive and constant use of alcoholic stimulants, which weaken the heart muscle by a process of slow poisoning. The continued use of alcohol lowers the resisting powers of the body, bringing about an acid condition of the blood; this in turn produces rheumatism, which always predisposes to and causes a diseased condition of this organ. If you would avoid heart disease let alcoholic stimulants alone.

RHEUMATISM AS A CAUSE OF A DISEASED HEART

The excellent researches of Pitcairn in the seventeenth century throw valuable light upon this subject and connect it directly with rheumatism. Chambers gives it as occurring in 13 per cent. of all cases of rheumatism; Ormerod, in 71.7 per cent. of all cases. Poynton found it to exist in 75 per cent. of all rheumatic affections. So it is easily seen how necessary it is to avoid rheumatic affections if we would avoid disease of the heart.

FATIGUE AND OVERWORK AS A CAUSE

I have told you in another chapter that fatigue was a common cause of rheumatism; if this is true, it must necessarily be one of the potent causes of disease of the heart. The heart depends largely upon a well-balanced nervous system for its strength and regularity of action, therefore, any undue strain upon our nervous system predisposes to this disease. Late hours, lack of proper rest and sleep, all tend to weaken this vital organ. Worry is another common cause, this because of its strain upon the nervous system. Lack of proper exercise is another cause of heart disease, also overeating. Therefore, if we would avoid this great American disease we must avoid excessives of all kinds and live the simple life to the letter.

CHAPTER XXXIX

How to Cook for the Sick

When overtaken by disease it is of the utmost importance to secure the services of a skilled physician. It is also important to have a careful and painstaking nurse. Either of these can give you proper instructions as to what to cook and how to cook it; but, alas, only a small percentage of people can afford a nurse, and many can afford but a limited number of calls from a physician, and in these few visits he cannot take time to teach you how to cook. Indeed, it is surprising to see how many physicians will say "avoid certain things and eat anything else you want." Now, this "something else" may be all right to eat providing it is cooked properly. But cooking for the sick and for those recovering from sickness differs as widely as any two things can, and while I shall not attempt in a book of this kind to give you a complete system of cooking, I shall lay down a few simple rules which I hope will prove helpful. I shall cover only those things which I consider most nourishing and best calculated to be borne by a stomach, both in acute illness and by those who are convalescing.

First of all, I desire to say that in all acute illnesses, where fever is present, withhold all food for a period of twelve hours. In cases of nausea and

vomiting, until the physician arrives, give no food of any kind and instead of water give small pieces of chipped ice. This can always be obtained either of your grocer or druggist.

Below I have given a few recipes for the preparing of foods most easily borne by a delicate stomach and which stand highest in the scale of nutrition.

BEEF-JUICE

Select a piece of raw, round beef. Have it cut about one inch in thickness, remove the fat, cut it into small pieces, place it in a jar with the top off. Cover with cold water. Set this jar in a kettle of water and allow the whole to come to a boil. Boil briskly for five minutes. Strain and season to suit the taste.

CHICKEN BROTH

Select a fowl and wash thoroughly, cut off dark meat in thin slashes, crack the bones and cover with two quarts of water. Bring to a boil and simmer for about four hours, or until the liquid is reduced about one-half. Add a little salt and when cold remove fat from the top.

MUTTON BROTH

Select the neck of a mutton, cutting it up into small pieces. Put into a kettle and cover with cold water, slowly letting it come to a boil. Now simmer for about four hours, strain, season with salt, and when cold remove the fat.

BEEF JELLY WITH IRISH MOSS

One-half of a cup of Irish moss, one and one-half cups beef broth well flavored. Soak the moss in

warm water for fifteen minutes, wash each piece thoroughly with cold water, drain and cover it with broth, let it soak twenty minutes and then slowly heat, stirring all the time, and simmer for fifteen minutes. Strain through a piece of cheesecloth, stand in a cold place to harden.

MILK OR RAISIN PORRIDGE

Two dozen of large raisins, one-half tablespoonful of cornstarch, one pint of cold milk, two pieces of loaf sugar. Slit the raisins and remove the seeds, cover with milk. Cook one-half hour at a temperature of 155 degrees. Moisten the arrowroot with a very little cold water, add the milk, cook until it is thick, strain and pour over the sugar.

MILK PUNCH

One and one-half cups of milk, one and one-half teaspoonfuls of sugar, a little nutmeg and one and one-half tablespoonfuls of brandy. Mix altogether thoroughly, and shake.

TOAST

Bread, preferably two days old. Cut into thin slices one-half inch thick. Dry thoroughly, either in an oven or broiler. Then increase the heat by means of direct flame, or by placing it in the oven until it becomes brown to the centre.

TOASTED ROLLS

Break the rolls into halves, then dry as directed under Toast, and then brown.

SOUPS

If you desire to make broth or soup have your meat covered with cold water. Cook slowly to draw out all flavor and soluble matter. The meat or vegetable to be cut into small pieces. Soups are better if made the day before they are to be used, that the soup may get thoroughly cold, then all the fat can be easily removed before it is re-heated. In making soups always stir with a wooden spoon. Clear soups may have added nourishment by adding a little rice, barley, etc. They are, however, all stimulants and prepare the stomach for substantial dishes that follow. To be palatable they should be served hot.

VEGETABLE SOUP

One and one-half pints of stock, one ear fresh corn, one teaspoonful of rice, two tablespoonfuls of young peas, one tomato. Salt to taste. Cut the celery and carrots into small pieces, boil one and one-half hours. Score the corn, prepare the tomato for stewing, remove skin and seeds and add them to the soup. Boil ten minutes and season to taste.

GRUELS

All gruels must be free from lumps and thoroughly cooked. Most of the preparations of grains should be cooked longer than is advised by the manufacturers. When some nutriment is desired eggs may be added, beating up the whites to a froth and stirring into the gruel before it is removed from the fire. Avoid too much sweetening.

INDIAN MEAL GRUEL

Three tablespoonfuls of corn meal, two tablespoonfuls of cream, one-half teaspoonful of sugar, one pint of boiling water, two-thirds of a teaspoonful of butter. Cover the meal with water, stir slowly, add the boiling water, keeping up a constant stirring. Add a little salt and cook in a double boiler for two hours.

INDIAN MEAL GRUEL WITH EGG

Make a quart of gruel as directed in the previous recipe, and before it is removed from the fire, add the beaten yolks of three eggs, then stir in the well-beaten whites. Cook for four minutes, stirring briskly. Serve as above directed.

EGGS

Eggs contain much nutrition, but to be digested easily must be served raw. The so-called soft boiled eggs must not be boiled at all. Boiling water is poured over the egg and then kept off the stove; in fifteen minutes the water will be cooled to about 150 degrees Fahrenheit. Eggs to be easily digested should never be fried.

SPRING CHICKEN BROILED

Singe it. Carefully remove the head and feet and split the chicken down the back; remove the intestines and wash the inside thoroughly. Place it on a broiler with the inside next to the fire, broil slowly for one-half to three-quarters of an hour. Just before it is done it should be turned and

browned on the other side; dust with salt, spread with butter.

SCRAPED BEEF

Select a pound of beef, preferably round. Have the meat cut into slices, place on a board and scrape it lightly with a sharp knife, first on one side and then on the other, until you have all the meat separated from the fibres. This can then be placed in a pan and broiled. Season with a little salt and add a little butter.

BROILED BEEFSTEAK

Have your steak cut one and one-half inches in thickness. Heat the wire broiler and rub the wires quickly with a piece of suet. Then hold the broiler near the fire and sear it quickly on one side, turning it often. Steak an inch in thickness requires about twelve minutes or thereabouts to cook. When done, dust on a little salt. It is better served in a heated dish in which butter has been placed.

BAKED FISH

White fish is best used. Wash quickly in cold water. Place in a baking pan, dust on pepper, cover the bottom of the pan with boiling water, add one and one-half teaspoonfuls of salt, which had better be placed at the end of the pan. Bake in hot oven, basting every fifteen minutes, add boiling water when it evaporates. Bake fifteen minutes for each pound.

EGG-NOG

One egg, one and one-half teaspoonfuls soluble saccharine, water solution, one and one-half tea-

spoonfuls of glycerine, one and one-half pints of milk, two teaspoonfuls of brandy or whiskey. Beat the egg until light, add the milk and sweetening. This should always be added after the milk. Pour from one glass to another several times.

MILK PUNCH

One cup or more of milk, one and one-half tablespoonfuls of soluble saccharine, water solution, or one and one-half teaspoonfuls glycerine and one teaspoonful of soluble saccharine, water solution, three teaspoonfuls of whiskey. Mix all together, beating or shaking until frothy. Pour from one cup to another.

CUSTARDS

Two-thirds of a cup of milk, yolks of two eggs, two teaspoonfuls of soluble saccharine, water solution. Beat the eggs until they are light, heating the milk, then pour slowly into the egg; cook by stirring continuously until a rich cream is formed, then pour from one vessel to another. Sweeten to taste. Add two teaspoonfuls of sherry. Nutmeg may be added.

BAKED APPLES

Baked apples can always be given to the sick. The proper way for baking: put one cup boiling water into a small pan, add one teaspoonful of glycerine and one teaspoonful of solid saccharine, water solution; then add the desired quantity of apples, which have been pared, cored and sliced. See that the dish is covered and bake until done.

CHAPTER XL

Family Medicine Chest.

Based upon an experience of fifteen years in the general practice of medicine, my opinion is that no family should be without a cabinet installed in the home containing many simple yet ofttimes potent remedies, which can be brought into play in emergency or while waiting for the family physician, and which, especially if living in the country, will ofttimes save much suffering before medical aid can be obtained. This cabinet should contain the following:

One hot-water bag; one douche bag; one box of seidlitz powders; four ounces spirits of turpentine; one ounce aromatic spirits of ammonia; one ounce tincture of iodine; one pint of creolin; one-half dozen two-inch sterilized bandages; one box of mustard.

One ounce of adrenal solution. Cotton soaked in this and packed tightly in the nose in case of severe bleeding or applied to a cut until the doctor arrives.

Liquid collodion, applied on cotton to a cut to stop bleeding or to close open wound after it has been cleaned by a solution of creolin.

One box stearate of zinc. Useful as an application for bed sores. Bathe the parts first with a

solution of powdered alum, teaspoonful to a cup of water, then dry and apply the zinc.

Severe Earache.—Atropine, grain one, water one ounce; mark for the ear. Four drops dropped into the ear every fifteen minutes.

The cabinet should also contain: four ounces of powdered borax; one ounce of powdered alum; one ounce liquid collodion; one nasal douche; one ounce P. D. & Company nasal tablets; one quart carron oil; one pair tweezers; one Esmarch rubber bandage; one small bottle hydrogen peroxide, glass stopper; two ounces sweet spirits of nitre.

HOT-WATER BAG

Many uses can be made of the hot-water bag, applying it to the abdomen in severe pain of colic; useful in case of chill and neuralgia, where moist heat is indicated.

DOUCHE BAG

For rectile douche or injection in case of constipation, and in severe pain in the bowels caused by gas. One quart of soap suds and water, to which one-half teaspoonful of turpentine has been added. If injected into the bowel, instant relief is afforded.

SEIDLITZ POWDERS

Useful in attack of acute stomach trouble caused by gas; also in biliousness; also in vomiting and constipation.

TURPENTINE

Two teaspoonfuls added to a quart of hot water; wring out a flannel from this solution and apply it across the bowel, for pains in the bowels. Two teaspoonfuls of turpentine, one-half cup of lard; spread between two pieces of cloth, apply to the chest in acute cold.

SPIRITS OF AMMONIA

Teaspoonful to one-half cup of hot water, for fainting. If fainting continues give one-half teaspoonful to one-half cup of hot water, every fifteen minutes, for four or five doses.

TINCTURE OF IODINE

Paint over sore and inflamed joints or muscles. Paint the chest in case of hoarseness. Apply to swollen and inflamed glands of the neck. Used in acute and inflammatory rheumatism.

CREOLIN

Teaspoonful to a cup of water in case of cuts. Teaspoonful to the quart of water as a vaginal douche. Useful in felons, after they have been opened.

ONE AKALOL DOUCHE

Useful for catarrh of the nose and throat.

CARRON OIL

Always use in case of burns or scalds. Apply freely.

SWEET SPIRITS OF NITRE

Teaspoonful to a glass of water; give two teaspoonfuls of this solution to a child every fifteen minutes for fever or suppression of urine.

ESMARCH RUBBER BANDAGE

In case of severe hemorrhage (bleeding) of the hand or foot or finger, apply tightly above the wound, to stop the flow of blood.

CHAPTER XLI.

Protection of Health

Through the kindness of Mr. Alexander M. Wilson, Secretary of the Boston Association for the Prevention of Tuberculosis, I have obtained permission to reprint here that organization's excellent circular on Protection of Health. The information contained in this document was prepared by competent men with much care, and as I regard it as invaluable, I would recommend a careful perusal of the following pages:—

DEEP BREATHING

"Live with fresh air about you. Breathe through the nose. Wear loose, comfortable clothing that does not bind or pinch the body anywhere. Stand erect with chest high and head thrown back.

CLEANLINESS

"Keep your mind and body clean. Don't give the face or hands a monopoly of such attention. Take a sponge-bath and rub-down every day. Keep the teeth sound and clean by brushing them night and morning, and rinsing the mouth after eating. Go to a dentist regularly.

EATING INCLUDES CHEWING

"Eat well-prepared simple food at regular times. Chew the food thoroughly. Chewing is necessary for digestion. Do not wash your food down with water. Drink all the water between meals that you care to.

REGULAR EXERCISE

"Regular outdoor exercise preserves the health, but do not get overtired.

"Exercise should be taken in moderation, and at least an hour should be spent out of doors in some work or occupation that is congenial. Those who have tuberculosis should take only such exercise as their doctors order.

SLEEP

"Sleep alone. Sleep at least eight hours each night. Have the windows always open.

"Be as careful to avoid tuberculosis-infected air and houses as you are water and milk contaminated by typhoid germs.

"Consumption causes one death in every four, occurring between the ages of twenty and forty. Thus it finds most of its victims at the active working age, and carries off young men and women just entering upon the serious work of life, fathers and mothers of families, bread-winners and citizens at their most useful period. Consumption is more prevalent in certain climates and among certain races, but it spares no nation, no age, no occupation, no class of people.

CONSUMPTION IS A PREVENTABLE AND A CURABLE DISEASE

"Consumption can be prevented. It can be cured if taken in time. It is not necessary to leave New England to be cured. All authorities now subscribe to the views advanced by Hippocrates, the father of medicine, who lived 460-377 B. C., viz., 'If the patient (consumptive) is treated from the beginning he will get well.'

NATURE OF THE DISEASE

"The cause of tuberculosis is a living germ—a tiny plant which can be seen only through the microscope.

"This germ, called *bacillus tuberculosis*, usually gets into the body by way of the mouth, when we are improperly using it, instead of the nose, to breathe through, or when we put something into our mouths which is contaminated through previous use by a consumptive.

"Tuberculosis germs most frequently lodge in the air-passages of the lungs. They may also get into the glands of the neck, attack the throat, the bowels, kidneys, brain or other organs, or the bones or joints. It is always the same germ working in the same way to destroy different tissues. If the workings of the germs are not stopped, the capacity of the lungs and other organs to do their work is gradually reduced, until death results.

"If it were not for the power that vigorous people, living healthy lives, possess to resist disease in general, it is probable that consumption

would kill off whole communities. It is hardly possible that any single inhabitant of a city, where many have consumption, could entirely escape breathing into his lungs some living germs of the disease. Fortunately in the fresh air and sunshine these germs live only a short time, while in an ordinary room kept dark and close, they may live months or even years.

"In the organs of the body, when the germs are not killed immediately, they produce little lumps called tubercles. In the lungs these grow, soften, break open and are expelled by coughing or otherwise. An ulcer or cavity containing many of the disease germs is left behind. In cure, nature builds a wall of scar tissues about the tubercle or cavity. This wall becomes gradually thicker and thicker, growing towards the centre until nothing is left but a scar. This means perfect cure.

"Until the scar tissue has thoroughly choked out the bacilli, it may break down at any time, leaving the bacilli free to continue their action in that place; then a relapse ensues.

NOT INHERITED

"Many will be comforted to know that the disease is not inherited, as it was long thought to be. The children of parents who are consumptive or otherwise run down and weakened, frequently inherit narrow chests, a low vitality, or generally poor physique. If they are not especially cared for and protected against infection, they are very likely to get the disease. Such children, and persons who are regaining health and strength after

illness, or who are engaged in dusty work, should guard and build up their health, systematically and persistently. Ex-president Roosevelt is a prominent example of one who, by following such rules as those on pp. 237-8, developed a poor physique into an exceptionally fine one.

"The cases of so-called 'hereditary consumption' are due to the disease being transmitted from one afflicted member of the family to another, either directly through personal contact, or through the medium of dirt and dust in the infected rooms.

THE VALUE OF FRESH AIR

"The value of fresh air cannot be over-estimated. Fresh air contains much oxygen, bad air very little. Blood is made red and pure by breathing in the oxygen of fresh air. New body tissue is built out of such blood. It makes the muscles active and the brain quick. Therefore do not work or sleep where there is no fresh air. Do not stay in a theatre, church, or other meeting place where your lungs are starved and poisoned for want of it. Breathe through your nose. That is what it is for. It smells bad air and so warns you. It filters out the dust and germs from the air breathed through it. The mouth has no filter for air, so those who breathe through it load their lungs with dirt and are more apt to get sick.

THE DANGER OF CARELESS SPITTING

" 'No one in health spits.'—Dr. Flick.

"Except when one gets something nasty, like an insect or tobacco in the mouth, this is true. Many

get into the habit of spitting and so of wasting the saliva, which is meant to keep the mouth clean and to aid in digestion. Do not spit unnecessarily. When it is necessary, spit into the water-closet, a spittoon, a spit-flask, a cloth or paper that can be burned. Less safe than these, but far better than the floor or sidewalks, is the gutter. Remember that while your spit may be only nasty and not dangerous, some one else who has a contagious disease that is commonly spread in this way, such as tuberculosis or diphtheria, is likely to follow your example. The poisonous spit is tracked and carried by flies, or dries and is blown or brushed about as dust.

"If women should spit as commonly as men do, how noticeable and disgusting it would be!

"The consumptive in himself is almost harmless. He becomes harmful usually through bad habits, which are due, as a rule, to ignorance. The consumptive at home or who walks about, works in offices or shops, will not transmit his disease to those with whom he comes in contact if he takes proper care of his spit.

CONDITIONS FAVORING THE SPREAD OF TUBERCULOSIS

"It has been found that the vast majority of those infected are persons who have lived unhygienic lives, or who are compelled, in order to gain a livelihood, to work amidst unhealthful surroundings or too long hours. Healthy persons, living a proper life, when infected, frequently get over the disease so easily that they do not even know that they had it.

"*Overcrowded*, poorly ventilated houses, offices and workshops, inactive occupations with lack of regular exercise in the fresh air, trades causing much dust, which, irritating the lungs, produces a condition favorable to the growth of the germ. Continued exhaustion from overwork, poor food and insufficient clothing, uncleanness, and especially intemperance, are all factors in predisposing persons to consumption; but it must be remembered that nothing can actually cause consumption except the entrance of the germ into the body. Consumption is common in persons living indoors and where there is not enough fresh air. It is rare among those living out of doors and sleeping in rooms well supplied with fresh air. *It is most common in the crowded parts of cities. It is least common in the suburbs where people live in separate houses.*

"No matter where the germs are, on floors, sidewalks, cars, on clothing or dishes, they are helped to live by dirt, dampness and darkness. On the other hand, sunshine, pure air and cleanliness are most valuable means of resisting and destroying the infection and preventing the disease. Keep your premises clean. Have a thorough spring and fall house-cleaning every year.

"Houses and rooms occupied by consumptives often become so infected with its germs that healthy persons afterwards occupying them often get consumption. Such rooms should, therefore, be disinfected and renovated before being used again.

"In four of the wards of Boston there are over twenty houses which have had five or more cases

of tuberculosis in succession during the last eight years. Such houses may fairly be said to be seats of infection and will probably continue to give consumption to their tenants until thoroughly made over.

"*The only sure way of preventing the infection of premises or other persons directly is carefully to put all the germ-filled spit out of harm's way by either burning it or throwing it down the water-closet.*

"Do not dread being near a careful, clean consumptive. Do not regard this disease as contagious to the same extent as smallpox, diphtheria or scarlet fever. Much harm has been done through unfair fear of the consumptive, which has caused him to be avoided as a leper. Consumptives are only a source of danger through discharges from diseased tissues—chiefly the sputum, usually called spit—and if these are destroyed, ordinary life with consumptive patients is practically free from danger.

"It has been proved that there is no infection in the ordinary breath of a consumptive. But the mouth should always be covered with a handkerchief or paper to catch the dangerous spray when coughing or sneezing.

KEEP WELL

"If your clothing or shoes become wet, make a change as soon as possible. Don't neglect a cold or a cough. Save yourself time, money and danger by calling on a doctor at once if you are sick. Countless graves are filled with those who had 'just a little cold which will wear off.' Colds

reduce the vital forces and make it easy for the germs of pneumonia and consumption to get a foothold. An examination for your cough may save your life and that of others. Avoid patent medicines or 'cure-alls.' They are dangerous and useless.

CONSUMPTION IS CURABLE

"Consumption is curable when wise treatment is begun early.

"The first symptoms of the disease may be loss of appetite and steady loss of weight, fatigue on slight exertion, general feeling of languor, lack of energy and ambition, rapid pulse, fever in the afternoon and evening, and a cough which is most noticeable in the morning. The cough may have existed for months with no evident injury to the general health; a slight, hacking cough, usually worse in the morning, may have occasioned so little annoyance that the patient will deny having a cough at all or will remember it only after careful questioning. Consumption often follows pneumonia, 'grip,' measles and whooping cough.

"As the disease progresses the symptoms become more distinctive. The evident wasting, the daily fever, the flushed cheeks, the night sweats and the continued cough and spitting, and determination that there are bacilli in the sputum, indicate definitely the presence of the disease.

"Bleeding from the lungs is a common symptom of consumption and often the first one noticed.

"Any or all of these symptoms should cause the patient to seek at once the most competent medical

advice. The State Board of Health and many local boards of health make examinations of sputum without charge. If you have the disease you will probably be advised to go to a sanatorium. Massachusetts has established a State sanatorium at Rutland, Mass., where the charge to the patient is only $4 per week. About $5 worth of equipment is required. Each of the New England states has now made similar provision. There are also a number of private sanatoria at which the charges are from $5 a week up.

"The best treatment is *outdoor life*, *rest*, and plenty of *good food* under careful and constant medical supervision. This can be much better carried out at a sanatorium than at home, while going away "into the country to board" without competent and detailed medical supervision is not advisable. However, many persons who cannot for various reasons leave their homes and go to a sanatorium can get well, or at least improve their own condition so far as to be comfortable and do a moderate amount of work, by putting themselves under the care of a physician and strictly following his advice and directions.

HOME TREATMENT

"Lack of accommodations in sanatoria and other reasons make it necessary for many cases to be treated in the home. We therefore give here some simple and general instructions. These instructions will be changed by your physician as he thinks necessary to suit your case.

"1. The patient should have a covered porch or balcony, or a sunny, well-ventilated and comfortable room, preferably on an upper floor. There he should sleep alone, with the windows wide open.

"2. Dr. Knopf says: 'All extra furniture, dust-catching curtains, and carpets should be removed, but the room must not be made cheerless. A few rugs, washable curtains, some cheerful pictures, may well be allowed. If arrangements for outdoor sleeping at night and the rest-cure in the open air by day on piazza or roof be added, so much the better. To make the open-air treatment feasible by day and night, even in the homes of the poor living in cities, I have made what I call a "window tent." It consists of an awning on the inside of the room. It is so constructed that the air from the room cannot enter or mix with the air in the tent. The patient, lying in the bed, which is placed parallel with the window, has his head and shoulders resting in the tent. By following the description closely it will be seen that the ventilation is as nearly perfect as can be produced with a simple device. The tent is attached to the frame of the window, but it does not quite fill the lower half. A space of about three inches is left for the escape of the warm air in the room. By lowering the window, this space can be reduced to one inch or less. The tent is constructed of four frames, made of steel or wood rods suitably formed and furnished with hinged ends; the hinges operate on a stout hinge-pin at each end, with washers to insure easy folding.

" 'The frame is covered with extra thick yacht-sail twill, properly fitted, and having long ends to tuck in under and around the bedding to prevent the cold air from entering the room. The patient gets in bed and then the tent is lowered over him, or by a cord and a little pulley attached to the upper portion of the window he can lower and raise the tent himself. Shutters can be used with the window-tent as a screen from the neighbors, and in stormy weather as a protection. The window tent will not attract attention from the outside. A piece of transparent celluloid is placed in the front of the tent as a window for the nurse or members of the family to watch the patient and to make the patient feel less outdoors and more with his family, as he can see what is going on in the room.

" 'In winter the patient's bed must be covered with enough blankets for his comfort and warmth throughout the night. The coverings should not be so heavy as to press down upon the body and make the patient feel uncomfortable or tire him. A tightly-woven real wool blanket is better than many loosely woven or shoddy ones, or comforters. To the poor it may be good advice to put several layers of newspapers between the coverings. This will make a cheap, light and warm covering. In extremely cold weather the patient, while sleeping in the window-tent, should wear a sweater and protect his head and ears with a woolen cap or a shawl.

" 'Some patients complain that the light awakens them too early in the morning, and that they have difficulty in going to sleep again. I advise them to

have some light-weight but dark-colored material (such as a black lisle-thread stocking) to put over their eyes.

" 'This fresh-air treatment must be begun gradually according to the patient. It should, however, be impressed upon him that night air is as pure as day air. It is best to begin by placing him in the tent for a few hours at night, and a few hours during the day in a chair. The doctor will regulate all this so as to get the patient gradually used to living in the pure cold air, day and night. A hot-water bottle for the feet may be necessary in very cold weather. The patient's feet must be kept warm if he is to benefit by the open-air treatment.' There are other good window-tents besides that of Dr. Knopf.

"3. Whitewashed or painted walls are better than papered walls, because they can be often and cheaply whitewashed, or washed, and so kept clean and free of germs.

"4. Expose the room freely and constantly, day and night, to the outside air, and sleep with the windows wide open unless you have a tent. Spend as much time as possible in the open air, and use the bedroom only at night. Do not get tired. Sit or lie most of the time in the open air. Except in the heat of summer sit in the sunshine as much as possible. Take only such kind and amount of exercise as the doctor orders from time to time. If there is much fever, stay in bed. As the fever disappears, and as the patient gains in strength, exercise may be gradually taken, but weariness must be guarded against.

"5. Be properly clad, and keep the feet dry. Do not load the body down with too many clothes. Do not be afraid of cold weather as long as the body is warm. A consumptive is no more likely to catch cold than any one else.

"6. Take a sponge bath each morning, and then rub the skin well with a coarse towel. We breathe through the skin as well as the lungs, and so the pores in the skin of the whole body must be kept open and clean.

"7. There is no known medicine that can cure consumption. Medicines for the relief of cough and other symptoms of the disease should be taken only on the advice of a physician.

"8. Lead a temperate life in all things.

"9. Be scrupulously careful not to infect the other members of your family, or further to infect yourself, by distributing about the house or elsewhere the germs contained in your sputum. Have your dishes washed with boiling water. Have separate soap and towels for your own use. Be sure to wash your hands before eating.

"10. It is best not to use handkerchiefs to receive the sputum. Japanese paper napkins or other soft paper, or pieces of old linen, may be used and should be burned. When you are walking about, these soiled pieces of paper, etc., may be collected in a paper bag and later burned, or one can use a destructible spit-cup, which can be bought for a few cents; use one or more a day and destroy them by burning.

"11. Never swallow what you cough up; it may cause an infection of your bowels.

"12. Scrupulously avoid dust, disorder, dampness, darkness and bad air in your home and elsewhere.

"13. Be hopeful and expect a cure.

"The consumptive is of little danger to any one, even in the home or workshop, if he is careful to obey these rules and directions.

WHEN AND WHAT TO EAT

"The following are good general rules to follow in relation to eating:

"Food should be taken at least six times in the twenty-four hours; lunches between meals and on retiring.

"Never eat when suffering from bodily or mental fatigue or nervous excitement.

"Take a nap, or lie down, for at least twenty minutes before the midday and evening meals.

"Take plenty of food. Have it well and thoroughly cooked.

"The everyday simple foods are better than the dainties sent in to tempt the appetite by kindly friends and neighbors.

"Chew the food thoroughly before swallowing it.

"That one may regain lost weight it is usually necessary to add milk, which is a cheap and very desirable form of food, and also eggs to the amount of food ordinarily eaten.

"The milk should be fresh and pure.

"The experience of many thousands of persons has proved that there is practically no one who cannot take from one to two quarts of milk a day.

"A consumptive should not be allowed to sit at a table with others, unless his hands and face have been carefully washed, and unless he is able to control his cough while at the table.

"Pleasant surroundings, a cheerful dining-room, an inviting table with a clean cloth and napkins, well-cooked appetizing food attractively served, help in the treatment of consumption.

"To disinfect is to kill disease germs.

"Disease germs are likely to be found wherever the sick person has been, and on all the things he has touched or used.

"If the germs are not killed, they may make some one else sick and perhaps die of the same disease. The best way to kill them is to have plenty of sunlight and fresh air in the house, and especially in the sick person's room, and keep it clean and in order. In dusting use a damp cloth. For the floors use a scrubbing brush, damp paper or sawdust, or a mop. Never raise a dust.

"When the sick person moves away or dies, ask the board of health to disinfect. If the board of health will not act, you should get one and one-half pints of formaldehyde solution and eleven ounces of permanganate of potassium from the druggist. Open the closets and all the drawers and the bed, and spread around the room all the clothes and other things left by the patient. Close the window, fireplace or other openings, pasting strips of newspaper over all cracks and keyholes. Put the powder in a hot dish-pan or metal pail in the middle of the room. When everything is ready pour the formaldehyde solution into the pan and leave

the room at once. Keep the door closed for at least two hours. The larger the room the longer you should keep it closed. Open the windows from the outside, if possible, but if necessary to enter the room to open the window for airing after disinfection, hold the breath, rush in and out again. This disinfection is cheap and effective and will not harm the things. Sulphur candles are nearly useless. Formaline candles are expensive, and probably less effective than the method described.

"The disease germs are dead after this disinfection. The whole place must then be cleaned and renovated. Burn papers, magazines, old clothes, rags and other useless things. Boil for fifteen minutes all the dishes, pans, tableware, and brushes and combs. Linen, washable clothes, curtains, rugs, blankets, etc., should be boiled. Painted walls, the floor and the furniture should be scrubbed. Whitewashed or papered walls should be scraped and done over. The carpet should be burned or scrubbed and dried thoroughly in the sun.

"When the person knows he has tuberculosis or any other contagious disease, he should begin to be careful not to spread the infection. During the sickness the spit or what is coughed up should be collected in paper napkins or in a cup with water and burned or thrown down the water-closet. All the patient's dishes and tableware should be boiled after every meal.

"Dainties or other food left over by the patient must never be given to others or even to the cow, pig, chickens, dog or cat.

"It is dangerous and wicked to give away anything which has been exposed to disease until it has been thoroughly disinfected.

"Report to the board of health any case of infectious or contagious disease in your family or house, as soon as you find out about it, unless the doctor says he has done so. You may be fined if you do not report it."

CHAPTER XLII

Typhoid Fever—its Early Symptoms, and how it Can be Avoided

Typhoid fever is a disease of youth and early adult life. It is caused by a specific germ and the greatest number of cases occur between fifteen and twenty-five years. Cases are rare in those over sixty years, but it is not infrequent in childhood. As in other diseases, not all exposed take the disease. We are glad to see that as sanitation is improved in our cities and villages, this disease becomes less frequent. It prevails most in hot and dry seasons; it is caused by a specific germ which may be transmitted from one person to another, but it is taken in most often by the water we drink. Milk is also a source of infection. Oysters are a source of infection, in fact, in my opinion the eating of raw oysters causes more cases of typhoid than we formerly supposed. Flies are a sure source of infection. If a case is carelessly handled in the neighborhood and soiled linen is left where they can light upon it, that same fly flying across the street into your unscreened window can surely carry contagion to you.

After this germ is taken into the system a number of days may elapse before the patient begins to realize that he has contracted the disease.

The early symptoms of typhoid can be mistaken for many other diseases—dull headaches, a feeling of lassitude, and sometimes a slight bronchitis, with a coated tongue. Usually either constipation or diarrhœa is present. The patient feels exhausted, "tired all the time," as he expresses it. These are the main early symptoms. If you are not sure about the water or milk you have been drinking, if you have been exposed by sleeping with a person having these symptoms, then it is well to consult a physician, who will immediately take a drop of blood from your ear and have it examined. The disease discovered early can be carried along under treatment so that you will have it light. If you live in the country, and typhoid breaks out, immediately give the following advice to the family: Look carefully to the privy, use plenty of chloride of lime, use it in the bed-pan when a stool is passed and dig a hole in the ground, put in a quantity of lime, deposit the stools, use more lime, and cover with earth.

As I write this, I am watching an outbreak of typhoid in an adjoining town and the history of this might serve to show you how this disease will travel. Here we had a population of less than forty persons, and at the time I write, eleven are infected with typhoid, conveyed by the common house-fly. You may ask how I know this. An analysis of the water and milk shows them both to be free of the germ, yet a young man in this neighborhood, some three weeks ago, came down with the disease. He used a privy, the flies swarmed to the privy, and without question infected many other persons in

the neighborhood. The reason for this supposition is this: That all the other persons who fell sick lived within 200 yards of this privy vault; therefore, you can see the absolute need of exercising the utmost care in the care of the stools.

I have now given you its most prominent early symptoms. I have said something about prevention, but in conclusion I want to say that here again, as in all acute and infectious diseases, the most important step is to look carefully to your general health during the typhoid season; if your stomach troubles you, treat it. If you are troubled with constipation, treat that, which can easily be done by simple laxatives. The care of the mouth and teeth is also an important factor in warding off typhoid, and the building up of the blood by a little iron helps to ward off this disease. Very few persons who are perfectly healthy contract it, although brought in direct contact with same. Remember that in this disease as in all others, cleanliness, both around your dwelling and about the body, with the shutting out of the common house-fly, are some of the very best preventive measures.

CHAPTER XLIII

For the Young Man, Shall it be the Factory or the Farm?

The desertion of the farm for the city and factory life is a common cause of tuberculosis. This drain upon the rural districts must cease, otherwise we must produce eventually a nation of weaklings. The death rate among those who follow agricultural pursuits is the lowest of any class and highest among those who leave the outdoor air for the stifling atmosphere of the factory and store. The offspring of the farmer has been the maker of history in the past, and to him we must look for stable stock in the generation to come.

Did you ever stop to think of the number of times you have heard the expression, "You should spend a few weeks in the country if you would regain your health." Our large towns are fast becoming overcrowded with young men who have left the farm to seek their fortunes in the city. A few find it, but 80 per cent. reach the city, learn a trade, get married, settle down, as they term it, and naturally enough raise children; then the trouble begins. As long as your health holds out and you can work, you are all right; but if you fall sick and this sickness causes you to lose many weeks' pay, what happens? Bills at once accumu-

late, and when you are again back upon your feet it is with a weakened body and added responsibilities; for the back rent, the grocery bills and all the other bills must be paid or you are soon on the black-list; and all the time you must provide for the little ones God has given you, as well.

We are told on good authority that in the city of Boston alone, there are ten thousand tubercular school children. We don't see many in the country, do we? No! The opportunity for the boy today is greater in the country than in the city. Ponder well, young man, over the question, before you make a move, for the beginning of a young life foretells many times its end. When once you are harnessed down to the routine of city life and work by the week, you can't help thinking of the freedom of country life, its independence, its purity, its influence upon your character, its freedom from temptation and intrigues, into which so many fall. Honesty and uprightness, born in your country home, are often displaced through force of circumstances in the city by dishonesty and the wedding yourself to bad habits from which it is hard to escape.

CHAPTER XLIV

Measles a Dangerous Disease, and Why?

This is a child's disease and is supposed by the laity to be of little or no consequence, in fact, our grandmothers would tell us that we had better let the baby catch it and have it over with. In this particular I would agree with her, providing she will confine it to the baby at the breast and exercise the utmost care in its convalescence, but I want to say to you in the start that you are dealing with a dangerous disease if care is not exercised. In the first place, great care should be taken when it comes to the question of taking cold after an attack, and always remember that measles produces a sensitive condition of the bronchial tubes and makes the child particularly sensitive to bronchitis and broncho-pneumonia.

Many a child has gone through life with weak eyes because care was not exercised in excluding the light during and after an attack of measles. The mucous membranes of the nose, throat, eyes and bronchial tubes are made very sensitive in all cases, so even with the baby it is always safe to have the family physician see the child once or twice, even if you have a mild case, and to follow his advice closely. The great mistake that is made in many cases where baby is lost is because the case,

being simply measles, is too often allowed to go untreated. If the child is, say, two or three years old or older, or if an adult is attacked, then you should remember that you are dealing with a disease which is often followed by the dreaded enemy—broncho-pneumonia, and a weakened condition of the eyes, which, if not prevented, may follow the person through life. Home remedies may be prescribed by the family doctor and followed, but physicians have come to realize that this disease is not a simple but a dangerous one. Cases are on record where the lives of both father and mother are lost, the disease having been contracted from a child. As I said in the beginning, prevent the child from having it if possible, as you would prevent it from having any other disease, because the fewer diseases a child has, the better.

CHAPTER XLV

The Young Man, the Cigarette and the Saloon

Young man, as you are beginning life, let me say to you that a place at the top rung of the ladder was never more to be desired than at the present time, and in starting out in life always have your eye on that spot. There are plenty at the bottom of the ladder, many who are content to remain there, and many who would like to rise but cannot, because they are chained to that spot by some vicious habit. It is not my purpose to give you a lecture on temperance, neither is it my desire to frighten you by telling you that the so-called cigarette habit can have in store for you only a blighted future and a sincere regret in after years.

Choosing either or both of these as companions, what have you done? You have handicapped yourself at the very outset of your career. Have you ever seen a young man who has ever increased his physical strength, which is his capital, or his standing in the community by the use of either of these things? If you can find one, follow his example; but you cannot! You, on the other hand, can put your finger on many a weak heart and many a weak body, made so by the saloon and the cigarette.

For years as an examiner for different insurance companies, I have been saddened at the number of

rejections I have been obliged to make among people who could trace a weakened heart or a weakened lung to no other cause than alcohol and cigarettes. As a physician I well knew that usually a blighted future and a stunted intellect and physical growth must necessarily be the outcome of a continuance of these habits.

Today men buy the most efficient machines when they desire the most efficient service. So our civilization receives its impetus and has its momentum maintained by the most efficient minds and bodies.

CHAPTER XLVI

Municipal Sanitariums and How they Can be Established

At the last meeting of the National Association for the Study and Prevention of Tuberculosis, Holmer Falks, vice-president of this association, stated that it was his belief that there were at least seventy-five thousand advanced cases of consumption in the United States, with not over five thousand beds for their accommodation. Now, tuberculosis is a communicable disease, that is, it can be contracted from one who is ill with it. If we ever stamp out tuberculosis, it will be when we have provided a place where suitable care can be given these cases and when they can be placed in institutions where their sputum cannot affect other members of their household.

This leads directly up to the question of the establishment of municipal sanitariums, a bill for which I have prepared, and which will be presented to the next General Court of Massachusetts. This bill provides for a referendum to the people, and in substance means the elevation of the tax rate of city and town, one mill upon each dollar of taxable property, the money thus raised to be used in building and maintaining sanitariums for all cases of consumption. I trust this bill will receive the sup-

port of every member of the House and Senate, for when it becomes a law it will not only reduce the death rate in Massachusetts, but it will save many a young life from the ravages of this disease.

A few years ago in my private practice the father of a family of three contracted consumption. Notwithstanding the fact that he was early taught the danger of spitting and that he might infect other members of his family, he was careless, and as a result of his carelessness the older daughter contracted the disease and died. The mother contracted it from the daughter and died. The youngest child contracted it from the mother; she, too, fell a victim at the age of fourteen and passed away. Such chapters as these ought not be repeated, but until we establish municipal sanitariums for these cases, we must go on spreading the infection from one member of the household to another, for in the sputum lurks the danger. People never seem to realize the dangers from a consumptive where he must be cared for among other members of the family, and this is especially true where the family is large.

CHAPTER XLVII

Emergencies, and What to Do When they Arise

The application of simple principles has saved thousands of lives. I remember well an instance of a hurried call which came to me. A small boy ran to my office, asking that I come at once to ——— Street, to Mrs. Black, who was very ill. Upon arrival I found that a young girl of seventeen had drunk household ammonia. She had had a quarrel with a young fellow who was keeping company with her, and as a result she seized a bottle of strong ammonia and drank freely of same. Now, in this case, one must act quickly and make use of the most common remedies at hand. A large dose of vinegar, followed by a large dose of olive oil, administered at once, saved her life. Here are some easily get-at-able remedies for the ordinary emergencies of life:

SCALDS AND BURNS

These are most common in childhood. Always keep one quart of carron oil on hand; it will keep for years. Apply freely, cover with cheesecloth or clean linen, and send at once for your physician.

TINCTURE OF IODINE

This is usually kept in the house and accidentally may be drunk by a small child. At once give child flour mixed with water and white of eggs, while waiting for physician.

NITRATE OF SILVER

Give freely common salt, white of eggs and milk. Send at once for physician.

SWALLOWING PIN BY BABY

Don't get excited, unless it seems to stick in throat; if so, send to nearest physician.

SWALLOWING PENNY

Large dose of castor oil.

SWALLOWING BUTTON

Large dose of castor oil.

CLEAN CUTS

Immerse at once in cold water, to which creolin has been added in the proportion of teaspoonful to cup.

RAGGED CUTS

Creolin and cold water, cloths wrung out in same and laid on the wound. Consult your physician.

WOUNDS TO EYES

Compresses of cold water. Consult your physician at once.

DRINKING OF CARBOLIC ACID

Give freely milk, white of eggs. Powdered chalk should be given if at hand. Epsom salts. All of these are household remedies.

POISONING BY MUSHROOMS

Teaspoonful of mustard to a cup of hot water; drink at once. Large dose of castor oil. Empty the stomach as quickly as possible by moving the bowels at once.

CAMPHOR, IF TAKEN BY CHILD

Make him vomit by giving mustard and water. Give brandy or whiskey freely.

CROUP

Teaspoonful of wine of ipecac. Immerse in warm bath ten minutes. Apply hot poultices to the throat. Sometimes an anxious mother can be relieved of her anxiety by wringing a towel out of the coldest water available and wrapping it around the throat.

NOSE BLEEDING

Raise both arms above the head. Grasp the nose firmly between the thumb and forefinger; inject a quantity of ice-water to which common salt has been added. Saturate a towel with ice-water and lay across forehead.

HEAT STROKE

Remove patient at once to a cool room, lay him down near an open window and strip off the

clothes. Pour a stream of water over the body. Hold the pitcher five feet above the body, let it strike the head first, then the chest, then the arms and legs. Brandy and milk and aromatic spirits of ammonia should be given freely, if patient can drink; if not, inject into rectum.

COAL GAS

Artificial respiration at once. Cold water poured over the surface of the body at once. Summon a physician while this is being done.

SWALLOWING OF FOREIGN SUBSTANCE SUCH AS UNCHEWED MEAT, STONE, ETC.

Violent blow on the back. If this fails, stand patient on the head and strike with open hand between the shoulders, moving him rapidly from side to side.

CHAPTER XLVIII

Dancing and its Relation to Pneumonia and Consumption

In the few brief words I shall say upon this subject I am aware that I shall at once meet with opposition from that vast number of young men and women who engage in this pastime. By many of you I shall be termed a crank and by others a fanatic, but I assure you that it is farthest from my mind to deprive you of any pleasure which you may derive from dancing. It is plainly my duty, however, to warn you of the dangers and after that—well, he who dances must pay the fiddler, or his parents the undertaker. Stop a moment and ask yourself if you have not too often heard this expression, "She attended a dance, contracted a cold, had a chill, took pneumonia, and lived only a few days." Dancing, as it is conducted today in both city and country, predisposes to acute cold and an inflammation of the throat and bronchial tubes. The pneumococcus, active and plenty at the season of the year when dancing and balls are at their height, seeks these inflamed tissues and begins at once to set up an inflammation, causing chills, fever, congestion, which rapidly travels to the lung tissue itself, and consequently a train of symptoms which you have all seen follows these attacks.

Grave danger lurks in the overheating of the blood from the violent and exciting exercise of dancing, which is followed in many instances with diseases which often terminate fatally.

The great charity and society balls in New York, Boston and Chicago reap their annual crops of death every year. Hundreds of young men and women annually fall prey to pneumonia and early tuberculosis, traceable directly to one of these functions. The ball-room may have its dangers in a social way, overestimated, I think, by the church and clergy, but vital statistics bear out the fact, coupled with the history of the case, that hundreds of lives are annually sacrificed upon the altar of Terpsichore.

CHAPTER XLIX

What to Eat and How to Eat it

It has been well said that no army advances except upon its belly, and it might be added with equal pungency that civilization crawls upward on its stomach. The napkin and the fork differentiate civilized man from the savage quite as certainly as the Bible and the spelling-book. To eat with one's fingers is not necessarily a sign of irreligion, and the table manners of some quite devout Europeans are said to be abominable. Yet there is a science about so simple a thing as eating and drinking, and until we Americans have mastered that science we shall continue to be known as a nation of dyspeptics, and shall suffer in our stomachs and our pocket-books until as a people we learn to practice more self-denial and less gluttony; more common sense and less foolishness. More deaths are caused in the United States annually by indigestion than by strong drink.

In a work of this kind, with its diversity of subjects, I can allude but briefly to a few salient and stubborn facts that confront every physician, when he attempts to minister to a stomach diseased. In the first place the best way to defy dyspepsia is to dodge it in advance, and in order to dodge it in advance, you must begin at the very picket-line of

mastication, beginning with the teeth themselves. Many otherwise very clean persons act as though they had no such things in their heads as teeth, and yet upon their care depends very largely the state of their bodily health. They should be brushed thoroughly on arising, after every meal and before retiring, with this solution: Hydrogen peroxide two teaspoonfuls to one-half cup water.

Don't be afraid to chew your food. More people have died from not chewing their food enough than have ever died from chewing it too much. Masticate every particle of food you put into your mouth thoroughly. After you have done so you will swallow your food naturally; you will not have to gulp it down. Do not hurry your meals. It is not the amount you eat that sustains life; it is the way in which you eat it. A little eaten properly will benefit you and keep you going until the next meal is due; where a great mass of half-masticated food thrown into your stomach in a hurry will clog that organ, render you lazy and uncomfortable, and pave the way for all the horrors of indigestion and perhaps death itself. An attack of apoplexy has not infrequently followed a hearty meal, hastily partaken of. Avoid haste, worry and anger, when you eat, as you would a deadly reptile.

Stop eating when you feel that you have eaten enough. Do not look around the table to see if there isn't something more you could spur your jaded appetite into appropriating, and do not allow yourself to be enticed into eating more than you want, no matter how attractive it looks nor how eloquently it is pressed upon you. It is safer for

you in the garbage barrel than in an overloaded stomach.

Eat as a rule what appeals to you. If you like flesh, eat it; if you like vegetables, eat them; if fruit appeals to you, eat fruit; if bread, bread; if pastry, pastry. If you like them all eat them all, but in every case with moderation and temperance. Many good temperance men drink tea and coffee to excess and gorge themselves like gluttons, and yet they affect to look down upon the poor drunkard. There is eminent authority for putting the gluttonous and the wine-bibber in the same class. I shall not prescribe an exclusive dish for any reader of these pages. If your stomach is "out of kilter," as the phrase goes, eat as little as possible for a few days—it is no bad thing to fast a little occasionally, for the stomach's sake as well as the church's sake, and then try the simple foods which I have outlined below and which I have selected for their general excellence and palatability.

If possible never eat a cold meal, and if your work is such that you cannot readily obtain warm food, be sure to drink something warm. The stomach is chilled by cold food, just as it is warmed by warm food, and the temperature is lowered in it by cold victuals, as the temperature is lowered in your boiler when you let in cold water. No good engineer will allow the steam to get down and attempt to keep the machinery running by admitting cold water to his boiler. No wise workman will impair his efficiency by eating cold meals. The list of foods I would recommend to those suffering from incipient dyspepsia follows:

GENERAL RULES

Always take your meals at regular intervals.
Avoid drinking with the meals.
Those suffering from dyspepsia should take:

SOUPS

Clear soup of beef and mutton; a little tapioca may be boiled with these. Tomato soup, thin, may also be taken.

FISH

Perch, trout, bass, smelt, whiting, wheatfish, shad.

MEATS

Roast beef rare, boiled beef, mutton, chicken, tripe, venison, lamb chops, roast partridge, plover.

EGGS

Dropped on toast or stale bread, poached eggs, or soft boiled.

BREAD

Never eat fresh bread unless thoroughly toasted; rye bread, gluten, graham, cream crackers, cracked wheat, rice, sago, tapioca, macaroni with bread crumbs, cornmeal, hominy, wheaten grits, graham grits, rolled oats, rice cakes, bound rice.

VEGETABLES

Water-cress, spinach, lettuce, sweet corn, green peas, asparagus, baked tomatoes, and potatoes in small quantities.

DESSERT

Fruit of all kinds, except bananas. Rice pudding, sponge-cake, orange charlotte, gelatine, cream, blanc mange, baked apples, and all ripe fruits if fresh; no rich sauces.

DRINKS

Hot water before meals. Vichy, weak tea, peptonized cocoa, milk, buttermilk, malted milk, black coffee when it seems to agree with the stomach, mineral water, Congress water, Apollinaris, Poland and Highland Spring.

STIMULANTS

Brandy and water, hock, light claret.

MUST AVOID

Sweet, effervescent wines, strong spiritous liquors, rich stews and chowders, all fried foods, hot or fresh bread, griddle cakes, doughnuts, pork, liver, kidney, hashes. Pickled and corned meats, turkey, goose, duck, sausage, salt mackerel, bluefish, sardines, lobster, cabbage, cauliflower, cucumbers, egg-plant, carrots, squash, sweet potatoes, all pastry, pies, made dishes, nuts, dried and canned fruits, candies, cheese, strong tea, ice-water.

CHAPTER L

Hydrotherapy and its Relation to Health

HOT AND COLD COMPRESSES

Water is not only the most ancient remedy in the prevention of disease, but it is also one of the first remedies used in the cure of diseased conditions, and properly used is today one of the most potent remedies both for prevention and cure. Its great potency has been brought forward of late by the study of the Assyrian and Egyptian records. One reason for this lies in the fact that water is usually found ready at hand and approaches more nearly a panacea than any other known remedy. No other agent is capable of producing so great a variety of physiological effects, no other is so universally present, and hence no remedy is so readily adaptable for meeting the various indications arising from accident and disease.

The ancient Persians, Greeks, Hebrews and Hindoos all employed water in the treatment of disease, and even at the present time it is employed by them. Latter-day researches have demonstrated its worth; today, we are again harking back to primitive days, and like the use of fresh air we must recognize its potency when applied in an intelligent manner.

In cases of emergencies, for example some one has fainted, give a glass of cold water. Typhoid fever, plenty of cold water. Inflammation of the joints, cold water pack, and a multitude of other uses which I shall enumerate in addition to the bath, in this chapter and in other portions of this book.

COLD WATER BATH

Better known as the plunge bath. This bath is the most useful of all forms of baths. The bath-tub filled with cold water, the person gets into it quickly, simply lies down, immersing the whole body in the water and then arising quickly; using a large, coarse bath towel, rub the surface of the body rapidly until a red glow is produced all over the body; then dress quickly. This bath is indicated where there is nervousness, where there is a general run-down condition of the health, in dyspepsia, and in anæmia or depraved blood conditions.

SUN BATH

Sunlight is one of the most powerful of all hygienic and curative agents. It is death to nearly all microbes, very few of which are unable to resist the action of the direct rays of the sun after more than a few minutes. Sunlight is, therefore, one of the most important of all disinfecting and sterilizing agents. The value of sunlight is shown when in caves and mines and other places where light is excluded from plants, they will not grow, but die

quickly. Animals also deprived of sunlight soon sicken and die.

It has been noticed in some hospitals, according to records, that a larger per cent. of recoveries occur on the sunny side of the ward than on the shady side.

To have a sun bath effective the room in which this bath is taken should face the south. The patient should lie on a cot before the window or windows and the head should be protected. The duration of the bath should not be over ten minutes with the whole body exposed.

The effect of this bath: The surface circulation is greatly increased, the heart's action is increased and the action of all the vital organs is promoted. Sun baths are useful in cases of malnutrition, anæmia, in inactivity of the skin, chronic dyspepsia, most cases of nervous indigestion, rheumatism and obesity, but never should be taken if the person has once had sunstroke.

Ancients made great use of the sun bath in the treatment of the sick. According to Plutarch, Diogenes, the renowned Athenian cynic, was accustomed in his old age to lie in the sunshine for the purpose of recruiting his energies. Pliny states that this was practiced among the Greeks, as also the Romans.

THE COLD SITZ BATH

This bath causes very pronounced effects upon the pelvic circulation. It can be used in hemorrhage of the bladder, utris, rectum, hemorrhoids, and in some of the chronic inflammations of the

pelvic organs. A hot foot-bath should be administered at the same time. This bath is taken by sitting either in a bath-tub half filled with water or in a special small tub, large enough for this purpose. The temperature of this bath should be 85 to 90 to begin with and the hot foot-bath should be 104 to 110. In a very hot sitz bath the temperature should be 106 to 120, taking from two to eight minutes. It is well to begin with a temperature of 102 and add hot water until the maximum temperature is reached. Hot foot-baths taken at the same time should be 108 to 118. The use of this bath is of great service in restoring the menstrual function when held back as the result of a cold or chill or in other cases. It is also useful in sciatica, lumbago, abdominal neuralgia and, in fact, in any pains in the region of the hips.

HOT FOMENTATIONS OR HOT APPLICATIONS

In pleurisy and acute bronchitis they are of inestimable value. In the early stage hot applications should be employed only for short periods and the cold compress or ice-bag employed in the intervals, changing every twenty minutes for the fomentation. This ofttimes will break up an early cold and bronchitis. It also affords relief in rheumatic pains in the muscles and joints. Very hot applications made to the upper part or back of the head, also to the top of the head, will often relieve congestion. The temperature should be 130 to 138. This may be used for indigestion, colic, constipation, torpid liver. It is also useful in many other ailments, such as

nervousness, muscular contractions, alcoholism, lead poisoning and heat stroke.

These fomentations may be applied in all conditions where pain is present. It is very effective for the relief of pain from strains or sprains of joints and muscles; for the relief of colic pains, pain from gall-stones. For disease of the eye-ball, very hot applications to the eye. Hot fomentation may be applied to the whole head for relief of headache, for toothache, migraine and earache. Care must be taken to confine the application to the face. Hot applications may be applied to the throat, in croup and in tonsilitis, in all forms of gastric pains and pain in the bowels. Hot applications are exceedingly serviceable in cases of swollen internal hemorrhoids, or prolapsed rectum, with large internal hemorrhoids. Water should be applied as hot as can possibly be borne, by means of a soft cheese-cloth or sponge. Application should be continued for fifteen or twenty minutes.

Intercostal, that is, neuralgia between the ribs, sciatica, and other pains of similar character are generally made to vanish as if by magic under the influence of hot fomentations. In neuralgia, in acute articular rheumatism in which the application of cold as a finishing measure may cause the return of pain, parts may be allowed to cool gradually, leaving the last application in place for fifteen or twenty minutes, or until it has become nearly the temperature of the skin. It should then be removed and the part dried, gently rubbed, and then covered with a warm, dry, soft flannel.

In cases of hemorrhage from the lungs (while waiting for the physician), very hot fomentations may be applied to the upper part of the spine and the back of the neck, in connection with cold applied to the chest. Applications should be very short, three to six minutes; should be repeated every fifteen minutes.

For indigestion, colic, suppression of urine, constipation accompanied by abdominal pain and tenderness, torpid liver, very hot fomentations are of great value and are often used with best results.

HOT WATER BAG

No household should be without it. It can be used for a variety of aches and pains. Dr. Chapman said, "I have for twenty years made use of the spinal hot water bag I had constructed for the purpose." The application of the hot water bag is desirable for the relief of indigestion and pain, including distention of the bowels, and here I want to add that distention of the bowels caused by gas, causing ofttimes severe pain, can be removed by wringing out a cloth in one quart of hot water to which have been added two teaspoonfuls of spirits of turpentine. Use a thick piece of flannel applied to the bowels as hot as can be borne; then cover with hot water bag.

THE WET GIRDLE

is the same as a pack except that it covers a small area. The region to which it is applied is bounded by the nipple line above and the top of the hips

below. This measure has been exceedingly popular in Germany for the last 150 years. It simply consists of wringing out a cloth in water as hot as can to borne, wide enough to cover the points indicated above. This may be covered with an oil-silk over which has been placed a piece of cheese-cloth. This moist girdle is excellent in chronic dyspepsia, constipation, intestinal catarrh, congestion of the liver; it is also a panacea in cases of chronic backache; also in heaviness across the abdomen, or when the seat of discomfort is located at the hips.

THE HEAD PACK

Ordinary cloth compress, wet in cold water and applied to the head after the scalp has been thoroughly wet. A cap made of rubber, similar to the one used by ladies in bathing, is placed over these compresses and the retention of heat soon warms and produces comfort. The use of this stimulating head-cap may be called for in chronic headache or chronic neuralgia or rheumatic effects of the head, also excellent in chronic nasal catarrh.

HOT ENEMA OR HOT INJECTION

This is one of the most useful means of combating inflammation of the pelvis. Administered three or four times a day at a temperature of 110 to 115, it will be found of great service. In the onset of fevers, such as la grippe and cold, it is a most excellent remedy. A hot enema or injection at 102

to 110 is useful in bilious colic, so called. It is also useful in treatment of colic and infantile diarrhœa.

WATER DRINKING

Water drinking is a therapeutic measure which is of very ancient origin. It was described by Hypocrates as a remedy in fevers. Cold water drinking was used by Hahn in fevers, the first half of the eighteenth century. It has also been used by the Italians, French and Persians.

Schultz has shown that the copious drinking of water increases the proportion of water in the blood nearly six per cent. by thinning the blood. Large quantities of water drinking increase the activity of the skin and bowels.

In obesity, or too much fat, drinking large amounts of water assists in carrying off the broken down material. To forbid the drinking of water in obesity or over-fleshiness is a great error. In all conditions where fevers are present give plenty of water. Copious drinking of water is one of the most effective means of getting rid of a common cold by carrying off poisons.

One or two glasses of cold water taken a half hour before breakfast, in many instances works wonders in activity of the bowels and constipation. For chronic bilious attacks recurring every two or three weeks, drink plenty of water.

HOT WATER DRINKING

The fact that hot water has proved serviceable in some cases has led to its excessive use by many

persons. The general effect of warm water drinking is to break down the digestive system, while cold water acts as a tonic. Avoiding the free use of cold water at meals is an important hygienic rule. Cold water interferes with the digestion of starch.

CHAPTER LI

The Press and its Influence in the Fight Against Consumption

The war that is being waged at the present time against consumption (the fighters being re-inforced by the public press at every turn) is a war on poverty and crime, the far-reaching influence of which can hardly be estimated. Just how far we could have advanced without the assistance of the press is a question hard to answer. How great that influence is can better be understood when we are told that during certain weeks of the present year the press was printing a half mile of reading matter, all instructive, all new, all bearing on this great fight. The proceedings of our great International Congress on Tuberculosis were sent around the world in the columns of the newspapers.

During the last seven months the press has brought to the attention of the laity, and in many cases to the physician himself, facts of such inestimable value that their value in dollars and cents can never be calculated. Let me illustrate one point: The manufacturers and merchants in my health district entered into an agreement to care for their cases of incipient tuberculosis. The Associated Press sent this intelligence broadcast through the United States. Naturally it reached

the Old World as well. Inquiries as a result have come to me from every state in the Union, as well as abroad, as to the agreement. As a result of this movement, which, at the present time, is sending those afflicted to Rutland and similar institutions and returning them cured, the matter has been taken up in different states, and at this writing, as far as I am able to learn, more than two hundred manufacturing establishments have entered into this fight, and if the same ratio of cases is cared for in other places that is in this district, one hundred people each week are receiving aid at $4 each. This means $4 a week, $16 each month, or $20,000 a year, and the movement only started in November, 1908. And the press has spread, without money and without price, the intelligence of this great philanthropic and Christian movement.

In December of last year, when the exhibit of the International Congress was moved from Washington to New York city, the enthusiasm was kept at fever heat by the public press. Column after column of the great New York journals was given up to publishing facts about the exhibit and the reason why people should attend it, and was mainly responsible for a large share of an attendance of a million and a half of people, who had the opportunity of studying what science is doing for consumption. In the city of Philadelphia it shaped public opinion and assisted the Philadelphia Associates to accomplish these things, which they could never have done without its assistance.

It has brought to the attention of the public the constituents of many patent nostrums, showing

their effect on the human system. It has heralded broadcast the need of pure food laws, and it has apprised people of the need of more legislative measures for the protection of health. Its editorial columns have printed that address delivered by Prof. Victor C. Vaughn of the University of Michigan, a part of which reads as follows:

"Please do not understand from what I have said that I am a pessimist, for such I surely am not, but we must see and appreciate our weakness, if we are to relieve ourselves of it and grow stronger. This crusade against tuberculosis is the greatest work that man has so far attempted. We of this generation are starting it, and those who come after us will, we hope, complete it. I certainly believe that the time will come when tuberculosis will no longer curse our race. How soon this time will come it would be folly to predict, for that depends on the intelligence and earnestness of the effort that is put into the work. The eradication of this disease is by no means solely the medical man's problem; it demands the combined intelligence and labor of all men who are interested in the welfare of the race, and the individual who regards it with indifference should find no place in our legislative halls, either national or state. To take the life of a fellow-man willfully or maliciously is murder, the greatest of all crimes; to do so through ignorance or carelessness is manslaughter. In effect it is the same as murder, although in guilt it may be less heinous. The great majority of deaths from tuberculosis are due to manslaughter, and this fact should be recognized. The man who carelessly or ignorantly ex-

pectorates infected sputum, which, after drying, may be inhaled and may infect another, is guilty of manslaughter. The same is true of the dairyman who sells infected milk, or of the owner who lets an infected house. It is essential that we recognize these truths before we can be successful in our crusade against tuberculosis. The man who would put arsenic in milk or drinking-water would be regarded by the law as either a criminal or a lunatic, and in either case he would be so dealt with that he could not repeat the offense. The man who sells milk or other food infected with the tubercle bacillus or other disease-producing germs, is distributing a more deadly poison than arsenic, and he should be forbidden the continuance of such a practice. We need wise laws in order to restrict and eradicate tuberculosis, and their adoption and enforcement are sure to come as soon as the mass of the people see the matter in the true light.

"Our state governments should place tuberculosis on the list of diseases dangerous to the public health, require that all cases be reported, and the local health authorities should see that the disease is not disseminated. I do not think that any medical man holds that the homes of the tuberculous should be placarded or quarantined, but the tuberculous individual should be minutely and carefully instructed as to the care that he must take with his excretions in order that he may not transmit the disease to others."

The lessons which are being taught by the public press have their influence in two ways: first, they furnish to a large army of readers subject matter in

such a form that they will read it and, second, they place it at the disposal of many too poor to be able to purchase it otherwise.

I believe now, as I have in the past, that the press in this fight will illustrate the old adage, "the pen is mightier than the sword," and that the influence wielded by the public press of today will be of a material benefit not alone to those of us who live today, but to countless millions yet unborn.

CHAPTER LII

Conclusions

The conservation of the health and energy of our eighty millions of American citizens must very soon become a national consideration. Otherwise, the streams of life polluted, all along their course, by work, worry, want and unnatural stimulation, will soon allow our longevity to sink below high-water mark, and our American reservoir of human energy to become sadly depleted.

If the working people of this country have a right to ask for protection against foreign invasion, they have a just right to ask for protection against disease.

A saner system of eating and drinking in our American cities must be observed before our longevity will be materially increased.

Excesses in overeating cause more deaths than excessive drinking.

Consumption is a curable and preventable disease.

If we are to stamp out tuberculosis we must care for the advanced cases and provide early treatment for the incipient cases.

The present war on consumption is also a war on poverty and crime.

The present curriculum in our public schools is overcrowded, and the lack of physical training is tending towards physical degeneracy.

Houses built for working people should be constructed with more care, and laws relating to tenement house inspection should be enforced in every State.

Laws prohibiting the manufacture of cigarettes should be placed upon the statute book of every State in the Union, and a National Board of Health should be established by our next Congress.

The unnecessary loss of life through avoidable sickness in one year is appalling. The world would stand aghast if the same numbers of lives were lost in war in a decade.

The ventilating systems in our public schools are a constant menace to the health of both pupil and teacher, and alcohol and syphilis cause about 30 per cent. of all tubercular deaths.

The vicious habit of sending moderately advanced cases of tuberculosis away from home should be abolished.

The present working day is too long and leads to fatigue, which creates a desire for unnatural stimulation and results in consequent intemperance.

The present high mortality from tuberculosis among housewives is due in over 75 per cent. of cases to over-fatigue and frequent child bearing, coupled with insufficient care after the birth of the child. Finally, if more mothers would nurse their children the present enormous infant mortality would be materially reduced.

CHAPTER LIII

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